MOTORAGE

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Thirty-five Cents a Copy Three Dollars a Year

About the value in The NEW STUTZ

with Safety Chassis

by F. E. Moskovics, President

STUTZ MOTOR CAR COMPANY OF AMERICA, Inc.

INDIANAPOLIS

URING the New York and Chicago Automobile Shows, I spent a large share of my time in working with the retail salesmen at the STUTZ exhibits—actually selling The NEW STUTZ to motorists in order to get, at first-hand, their impressions of the car.

Almost invariably after showing The NEW STUTZ I was asked, "How can you do it at the price?" In fact, some of the biggest men of the automotive industry inquired if this automobile were priced sufficiently high.

Of course, many months before that I knew The NEW STUTZ would give the motorist the greatest dollar-for-dollar value of any car ever produced. That became obvious to everyone connected with its production very early in the development of our plans.

But I was gratified to see, in the public reception of The NEW STUTZ, so immediate

an appreciation of this value. No one had to be argued into it; it was the spontaneous realization of a wholly self-evident fact.

The unprecedented value offered in The NEW STUTZ is due, on the one hand, to the highly advantageous financial and physical situation of this company; and, on the other hand, to the expert designing of the car itself; so that, notwithstanding its custom-made and individual appearance, it readily lends itself to a reasonably large quantity production.

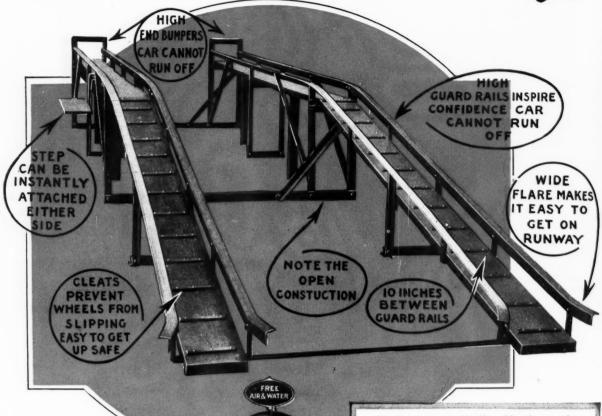
Thus, STUTZ dealers are not only enabled to offer their customers an automobile of remarkably advanced design, but also to furnish it at a price which makes it the outstanding value of the fine car field.

(Signed)

At markonice



MANUEY SERVICE RUNWAY Price \$ 90



Manley Air and Water Station Price \$50

THE hose of the Manley Service Stations on account of its freedom from injury by kinks, preventing cars running over it, etc., will outlast several lengths of hose not so protected. The garage may, therefore, expect to repay the cost of the station in a reasonable time, by the saving of the hose alone. Hose is returned by gravity—not by springs.

As a rule, the motorist who needs air or water will buy gas and oil where he gets the the air and water service. In many cases, instead of looking for a gas pump he looks for an air station, knowing that where he can get air he can also get gas and oil.

All Open in the Middle—No obstructions to interfere with the workman.

Double Legs and Extra Heavy Bracing—Tremendous strength and rigidity.

Truss Construction—Can be set up on any flat surface without any necessity for providing foundations of any kind.

Shipped with Legs Assembled—Cuts in half the time you spend setting it up after you get it. Saves trouble figuring out how it goes together.

DIMENSIONS

Height		 . 28 inches
Horizontal Len		
Length of Incl	line	 12 feet
Height of Guar	d Rail	 5 inches
Width of Tracks		
Rails .		 . 10 inches



Your Jobber Can Supply You

For new 1926 Catalog describing the entire

Manley line write to

MANLEY MFG. CO., YORK, PA.

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PA.

The BUICK Franchise means

HeBest Market

The higher the price of a motor car, the fewer the incomes that can afford it.

Buick provides outstanding value within the great price field from \$1000 to \$2000, where the men and women of average income invest their money.

Those who desire the Buick Franchise should have their names on file.

BUICK MOTOR COMPANY, FLINT, MICHIGAN

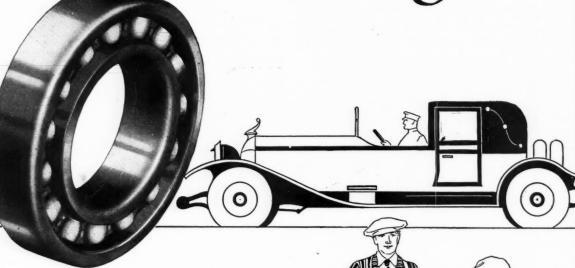
Division of General Motors Corporation

Pioneer Builders of Valve-in-Head Motor Cars Branches in all Principal Cities—Dealers Everywhere

the Better BUICK

WHEN BETTER AUTOMOBILES ARE BUILT, BUICK WILL BUILD THEM





A MOTOR car may sell for \$500 or \$5,000—but it can boast of no higher quality bearings than New Departures.

Man has yet to discover finer bearing steels than New Departure's electric furnace, high carbon chrome, nor greater endurance and resistance to wear than is inherent in this quality bearing used by 88.5% of the motor car builders in their 1926 models.

The New Departure Manufacturing Company
Detroit Bristol, Connecticut Chicago



A THURST SHOW

VOL. XLIX

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CONTENTS

Used Car Stocks Surprisingly Low	9
Repair Preventive Service Plan Proves Effective	10
Makes a Profit from Every Department By Clarence Phillips	12
A New Bill Fixit Story	14
Stewart Motor Corp. Adds Heavy Duty 6-Cylinder Truck	16
Merco System for Hydraulic Brakes	17
H-W Filtrator for Use on Trucks, Buses and Tractors	18
Model 53 Bus Chassis Announced by White Company	19
New Reo 11/4-ton Speed Wagon.	20
MOTOR AGE'S Picture Page	21
Flat Rate Forum	22
The Readers' Clearing House	24
New Items of Shop Equipment	28
New Accessories for Dealers to Sell	29
Editorial	31
News of the Industry	2-43
New Automotive Literature	36
Trade Association Activities	. 42
Coming Motor Events	. 43
Specifications	. 44
CLASSIFIED ADVERTISING SECTION	. 81
INDEX TO ADVERTISERS8	2-83

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In May Issue of The Country Gentleman Over a Million Copies

"Tell it to the millions and you'll sell the millions." That's the reason a big Norwesco Ad on SE-MENT-OL appears each month in The Country Gentleman Magazine—read by nearly five million people. A strong campaign is going to sell the millions on SE-MENT-OL.

SE-MENT-OL DISPLAY STAND



Builds Sales!

The SE-MENT-OL Display stand is a selling help that acts as a constant reminder to your customers that you are local headquarters for SE-MENT-OL. It is sturdy, attractive and of real sales value. Have your jobber supply you with one.

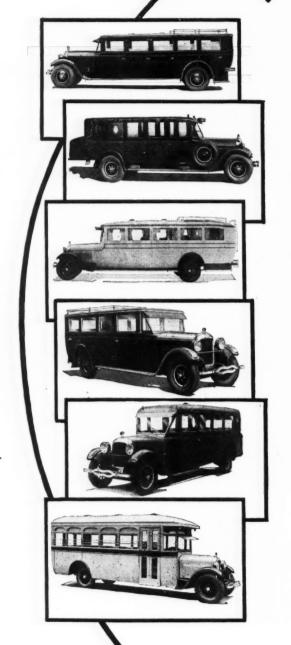
Made in the famous NORWESCO Laboratories

THE NORTHWESTERN CHEMICAL COMPANY MARIETTA, OHIO

In Canada-Norwesco of Canada, Ltd. Toronto, Ontario



A Miller-Built Bus Body on Any Standard Chassis



A FEW years ago any old kind of a hack could get by—and get business—as a bus.

Not so today. Bus riders are not only becoming more numerous, but more particular. No longer are they satisfied with mere transportation—they are demanding *comfortable* transportation. And giving their business to operators who provide it.

Operators are realizing this. That's one reason why you will see so many Miller-Built busses on the highways and city streets from one corner of the country to the other.

Another reason is that Miller-Built busses are built to give—and *do* give—long and dependable service. 300,000 miles of profitable service is not unusual for these sturdy coaches.

Any of these Miller-Built body models may be had mounted on any standard chassis. No matter what size or type of bus you may be considering, it will pay you to get the facts and figures on the Miller-Built line before you buy.



A Trade Mark Backed by 36 Years of "Know-How"

The A. J. MILLER COMPANY

BELLEFONTAINE, OHIO

5 reasons why the Studebaker franchise grows more valuable every day.

- 1. One-Profit Value
- 2. Unit-Built Construction
- 3. Always Kept Up to Date
 - 4. Used Car Pledge
- 5. Lowest Time-Payment Rates



This symbol means that Studebaker prices do not include the profits of outside body-makers

When a prospect walks into a Studebaker dealer's used car showroom he discovers two things that demand action:

The first—the famous Studebaker Used Car Pledge that has become nationally known through factory advertising and which creates in the prospect's mind the feeling of confidence that clinches used car sales.

The second—used Studebakers of a quality that makes them easy to sell—quality attested by the hundreds of Studebakers that have been driven over 100,000 miles.

Result—Studebaker dealers are moving used cars and the Studebaker Franchise grows more valuable every day.

> The Studebaker Corporation of America South Bend, Indiana



March! Greatest Ajax Month

March proved a history-making month for the Ajax Six.

It was the *biggest single month* of production since this brilliant Nash-built success was introduced.

By shipping 3817 cars in March, Ajax boosted the Nash increase last month from 59.2% to a combined Nash-Ajax increase of 108% over the total shipments of Nash Motors in March, 1925.

So that April, 1926, finds Nash-Ajax dealers facing bigger business and greater profits than ever before.





Every time man a set Valves you make real you make besides.

That's the successful this better

Ask your

James Motor
1314 Maple Street

you sell a of James not only money—a friend

reason why dealers sell valve.

Jobber's salesman!

Valve Company
Detroit, Michigan

JAMES
MOTORWALVES



Chrysler Demand At A New High Sales Peak

Retail deliveries of Chrysler cars in March 1926 are 30 per cent over March last year.

Retail deliveries are at the very topmost point ever reached in the history of the Chrysler Sales Corporation.

The very best Chrysler mid-season delivery record of all times is already eclipsed.

Chrysler selling is sixty days ahead of the usual spring sales peak date.

And the full strength of the public's demand of Chrysler products in 1926 has nowhere near been attained.

Your inquiry for a Chrysler franchise will be treated in strictest confidence

CHRYSLER SALES CORPORATION, DETROIT, MICHIGAN CHRYSLER CORPORATION OF CANADA, LIMITED, WINDSOR, ONT.

CHRYSLER

Used Car Stocks Surprisingly Low

Net Average Increase of Only 2.4 Per Cent in Number on Hand April 1 As Compared with Year Ago Reported by List of Representative Dealers

Have Increased This Year

..71%

66.4%

.....40%

58.2

54.5

36.4

. 47.2

41.8

How New and Used Car Sales

Percentage of dealers reporting larger stocks....

Average increase
Percentage of dealers reporting smaller stocks...

Average decrease
Percentage of dealers reporting no change.....

Average net increase for all dealers reporting...

Percentage of dealers reporting increase..... Average increase

Average of dealers reporting increase...

Percentage of dealers reporting decrease...

Average decrease

Percentage of dealers reporting no change...

Average net increase for all dealers reporting...

NEW CAR SALES

NEW CARS IN STOCK

USED CAR SALES

USED CARS IN STOCK

EPORTS from a representative list of retail car dealers throughout the United States, analyzed and averaged, show a net increase of 39 per cent in new car sales for the first three months of this year as compared with the corresponding period of last year.

At the same time these reports show average stocks of new cars on hand April 1 were 30.5 per cent greater than at the same time last year. Assuming that sales for the next few months will maintain the increased ratio

of the first three months, it follows that dealers are not quite so well supplied to meet the potential demand as they were last year.

These same reports show a surprisingly satisfactory condition in the used car field. With a net average increase of 26.5 per cent in used car sales, there was only a net average increase of 2.4 per cent in used car stocks on hand April 1, for all the dealers reporting.

This would indicate that dealers in greater numbers than ever before have refused to take in used cars at exorbitant allowances and that as a consequence more and more owners have disposed of their old cars privately before buying a new car.

It was found that actually

41.8 per cent of all dealers reporting had fewer used cars on hand April 1 than at the same time last year, the average stock of these dealers being 39 per cent less than a year ago. Another 11 per cent of the dealers had used car stocks the same size as last year. Thus less than half of the dealers reporting, or 47.2 per cent, had larger stocks than last year. Of those who had larger stocks than last year the average increase was 40 per cent as compared with an average increase of 66.3 per cent in

sales by those dealers whose used car sales were greater than for the first three months of last year.

On the other hand 36.4 per cent of the dealers reported an average reduction of 27 per cent in used car sales and 9.1 per cent reported sales the same as last year.

A study of the individual reports showed that almost invariably dealers reporting fewer new car sales had the greatest proportionate reduction in used car stocks. This indicated that refusal to be loaded up with used cars was

one reason for the reduction

in used car sales.

It was found, however, that in most cases of large increases in new car sales the dealers likewise had increased their used car sales and had increased their stocks of used cars less in proportion than their new car stocks. In other words, used cars were kept moving and were not allowed to accumulate.

Dealers reporting increased new car sales were 63.6 per cent of the total, and their average increase over the first three months of last year was 71 per cent. Dealers reporting smaller new car sales were 29 per cent of the total and their average reduction as compared with last year was 22.5 per cent. Dealers reporting

sales the same as last year in new cars were 7.4 per cent

Larger stocks of new cars than last year were reported by 58.2 per cent of the dealers and their average increase in cars on hand was 66.4 per cent. Smaller new car stocks were reported by 31 per cent of the dealers, the average reduction being 27.4 per cent. Stocks the same as last year were reported by 10.8 per cent of the dealers.

The reduction in used car stocks is encouraging.

The 1926 Motor Age Flat Rate Manual Will Be a Part of the Sales And Service Reference Number of Motor Age to Be Published May 6



JOSEPH J. DOBBS
Service Manager Wilmington Auto Co.

-Upper right: Part of the "Two and one-half acres of service" in the building of the Wilmington Auto Co., Wilmington, Delaware. Note the ramps leading from one floor to another.

JUST as in China, long ago, it was learned that it is a paying policy to employ a physician to keep members of the family from becoming ill, rather than to await illness before summoning the doctor, so are car owners beginning to realize that regular preventive service saves trouble and big repair bills. The automotive company offering such service wins for itself much good will through working in the interest of its patrons, keeping their cars on the road, and arranging to have them get the very best from their vehicles.

Preventive service of this kind is one of the high lights of the Wilmington Auto Co., of Wilmington, Delaware, which calls its method of averting unnecessary accidents and obviating big overhauling bills, the "Wilautoco Repair Preventive Plan," as well as the "Wilautoco Group Maintenance Plan." The company sells Buicks and Chevrolets and the operation of the method embraces thorough lubrication service at rates offering the customer substantial savings; a series of ten 500-mile inspections that help to prevent breakdowns due to lack of lubrication, and the installation on the instrument board of the customer's car, free of charge, of a neat metal inspection plate, $3x1\frac{1}{2}$ inches, indicating on an inserted pasteboard slip, in mileage, when the next inspection is due, thereby enabling the owner to keep accurate check on the proper time to have his car oiled, greased and inspected.

In this connection, also, there is issued to each Buick and Chevrolet owner who takes this special service, a "Maintenance Certificate," which is a yellow card, $4x2\frac{1}{2}$ inches, made out in duplicate and bearing on its face the certificate number, name and address of the recipient and

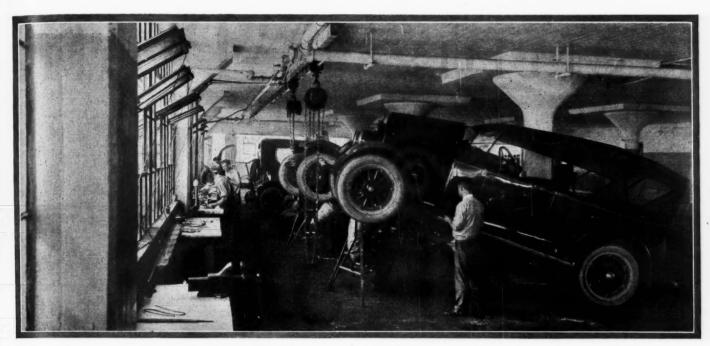
How a Wilmington, Delaware, Automotive Concern Is Using a Group Maintenance Method to Build Good Will and Prolong the Life and Comfort-Giving Qualities of Its Customers' Cars as Well as to Multiply Shop Work Contracts and Sales Opportunities

By K. H. LANSING

of the automobile company; and on the reverse side ruledoff spaces from the number 1 to 10, each space to be dated on the extreme left and each number, representing 500 miles' run, to be punched at the service station of the company when the car next comes in.

The company's copy of this certificate is a white card, 6x4 inches, bearing the same number of spaces to be dated and punched in the number column, there being in the center spaces for the car owner's signature and a column at the extreme right, wherein is indicated, in mileage figures, when the next inspection is due. Of course, the car owner's certificate which serves as his identification card and shows that he has subscribed to the plan, must coincide in dating, punching and all other essentials, with the company's duplicate.

Should a car owner lose his card, an impostor would be unable to obtain the service, because of the duplicate in the possession of the company, which he must sign each time, the other signatures being on the card for comparison. The company's duplicate, in addition to bearing the date of its issue, certificate number, name, address and telephone number of the owner, also gives the car's make and model, which would make fraud virtually impossible in the case of a lost, or imitated card. Both the owner's



In the capacious repair shop, fully equipped, 40 jobs a day are averaged and in the quick service department, 10 jobs daily.

Service Plan

certificate and the company's duplicate are punched in the owner's presence, to assure him that records are being carefully kept on this maintenance policy. Files of the Group Maintenance Certificates are retained in the service department office.

The inspection plate, indicating on its slip inserted at the time of inspection, the mileage when next the car should be brought in, reads:

"NEXT INSPECTION
(Blank space) MILES
WILMINGTON AUTO CO.,
Wilmington, Delaware."

Due to volume, under the group plan of repair prevention lubrication, the company is enabled to charge a considerably lower rate than otherwise would be possible. The owner pays in advance. Under this arrangement, the charge is \$30 for the lubrication on ten 500-mile runs in the case of the Buicks and \$25 for Chevrolets. This service ordinarily would cost the customer respectively \$45 and \$40. Of course, the customer has the option of renewing the service at the expiration of the 5,000 miles run, by paying in advance for ten more 500-mile lubrications. Should a customer neglect to bring his car in for inspection at the end of each 500 miles of driving, or at the end of two weeks, he is notified by post card that his car is due at the service station.

The special lubrication on the group, or repair preventive plan, is applied in the "quick service" department on the main floor, and not in the repair shop. Here is what is done for the car under the preventive plan:

1—All Alemite cups filled. 2—All transmissions filled to the proper level. 3—All differentials filled to the proper level. 4—Crankcase drained and fresh motor oil applied.

5—Front wheel hubs packed with grease. 6—Universal packed with grease. 7—Valve action lubricated. 8—Brake rods lubricated. 9—Pins and joints lubricated.

Proves Effective

W ITHIN a period of six weeks the company recently sold 65 "Wilautoco Repair Preventive Plans," at an average of \$28 each, making \$1,820 in cash prepayments.

Quick service department averages 10 jobs a day and the repair shop no less than 40 daily.

In the case of lubricating the transmission and differentials, the customer pays extra for any new material that may be used.

When the owner's car comes into the station, in addition to the lubrication, a mechanic carefully looks the car over. He searches for broken spring leaves, loose clips, or some part where there is indication of wearing out, notifies the customer of any needed repairs and obtains his O. K. before proceeding with the work. The idea is to let the customer know as soon as possible, if anything about the car requires particular attention, so that it may be done before any worse conditions arise. This inspection is renewed every time the car comes in at the end of a 500-mile run.

The repair work performed on cars under the special maintenance plans is recorded on a shop card as a special order, to which is assigned a job number that is carried throughout all operations on the car. An envelope system is used for filing the record and the time and material cards, and the job number is also placed on the outside of the envelope that contains them, so the record

(Continued on page 30)

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Age

Getting A Profit

H. A. Sims, A Hudson-Essex Dealer, Now Owning Fine Business and Making Money Even on His Used Cars, Started Out Seven Years

Ago with Cash Capital of \$50

DEALERSHIP which shows a profit in every department is a type of automotive establishment which we talk about much more often than we see. H. A. Sims, proprietor of the "Auto Service Garage," and a Hudson-Essex merchant at Champaign, Ill., conducts such an institution and therefore is one of the exceptions to the rule—an outstanding exception.

"Every department must return a profit if it is to be continued," says Mr. Sims, "for if it cannot be made profitable it is not a good business proposition and there is no sound business reason for its existence."

An array of figures lifted from his records by Mr. Sims the other day indicated without a doubt that he has no cause at present to think of discontinuing any department of the Auto Service Garage because of such an indictment.

Right: What evolution accomplished in seven years—the present home of the Auto Service Garage, Champaign, Ill., a property which with equipment represents an investment of more than \$130.000.

Below: An interior view of the Auto Service Garage, Champaign, Ill., showing the accessories and parts department. The show room is 90 feet wide and 50 deep. The story told by these figures revealed a profit not only for new cars, service, storage, parts, accessories and smaller sources of income, but also a profit for the—used car department.

There was a profit for each separate account and the figures presented covered the entire year of 1925. There was even a neat figure in favor of



From Every Department

By CLARENCE PHILLIPS will only apply the horse sense rules that go with the successful operation of any commercial undertaking. It is essential, of course, in a departmentized business to have a bookkeeping system that will enable you to know at any time just where your business stands as a whole and where each department stands. Money spent for this insight is money well spent and time spent in analyzing is time well spent." The accounting system employed by the Auto Service Garage provides a perpetual inventory. A financial statement from each department, made up at the close of the day's business, is delivered to the proprietor's desk each morning at 8 o'clock. Figuring on a net profit of 4 per cent, as a basis for calculation, the head of each Sims department is told that every net dollar lost by his department means that its gross volume must be increased \$25 in order to keep up with the procession. The employes have all absorbed this plan of reasoning and when the net dollar falls off it is the signal to get busy. But it is not the purpose of this article to deal exclusively with accounting and effective department management, the idea rather being to present some of the sidelights of a most interesting and successful automotive H. A. Sims, owner of the Auto Service Garage and a Hudson-Essex dealer at Champaign, Ill.

salvaged parts which are taken down, reconditioned, if necessary, and placed in an orderly stocking arrangement in the spare time of mechanics. Many dealers practice such salvaging but few of them, relatively, "know the figures" for they don't keep books that way. Mr. Sims does and the salvaging operation escapes no charge rightly due it. It must stand on its own legs and bear its proportionate share of the cost of doing business the same as new cars, used cars and servicing. These salvaged parts, while sold strictly as such always mean an entry in black ink when a balance is struck.

Extreme Right: Original "Alley" home of the Sims business. Next to it is the second home.

One of the secrets of Mr. Sims' success in making all departments pay is in his versatility as a manager. An expert mechanic himself, as well as salesman and an analyst who knows the meaning of figures from the accountant, his plan is to take hold of any department personally that shows a weakness and run it, himself, until he has it on a paying basis.

"I often marvel at the many wonderful opportunities for making money in this sort of business," declared this Champaign dealer, "and I am at a loss to understand dealers who step out of this field and take up some other line of effort with the complaint that the automotive business did not give them a chance. The opportunities are abundant and you can take advantage of them if you

establishment. H. A. Sims is the owner of one of the most talked of dealerships in Central Illinois. His rise to success has been remarkable and swift and the Auto Service Garage is one of the distinctive business showplaces of Champaign.

Mr. Sims is 31 years old. He was 24 when he landed in Champaign back in 1919 after his discharge from the army and he had but \$50 in his pocket. He had a wife. Today—after only seven years—he owns the magnificent business that yielded a gross volume of \$327,000 in 1925 and through which he sold 325 new cars, with a profit rather than a loss on his used car transactions.

That, in brief, tells of this dealer's progress.

He started his career in Champaign by getting a job and he had \$50 when he saw a chance to buy out a little "back alley" shop for \$300 on thirty days time. This was in the rear of what was known as the W. Lewis & Co. store, the site being dubbed by the new owner in promotion as "The Original Gasoline Alley." He called his plant the "Auto Service Garage," by which name the business still is known.

From the beginning the Auto Service Garage has operated with a policy guaranteeing money back if work is not satisfactory. That was the policy which helped hugely

(Continued on page 30)

Age

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and

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BILL FIXIT STORY No. 18

BILL FIXIT STORY No. 18

PREVIOUS installments in this series by A. H. Packer were published March 19, April 2, April 16, May 7, May 21, June 18, July 30, August 13, September 24, October 22, December 10, and December 31, 1925; also February 11, March 11 and April 1, 1926. SYNOPSIS: Bill Fixit's electrical trouble shooting men start on a trip in a Speedway car. They stop at various places along the way and in a mining community are robbed of all their money. This necessitates getting a job with the local electrician, to whom they give some helpful information gained in working in Bill Fixit's garage. Directional radio is used by government agents in locating a gang of crooks and the boys' money is recovered. The trip is continued and the night after leaving the mining town they stop with Barney Oldfield Smith, an amateur race driver and help him with a magneto job, where a new condenser is needed. After getting a number of electrical pointers from Bill Fixit's man, Barney decides to open an electrical shop. Several jobs come in and the Red Head and Valvy do their share of the work. After finding that there is not a great deal of profit in repairing only, Barney installs an accessory case beside the gas pump and the Red Head rigs up a device which turns on the show case lights when a car drives up and turns them off again when it drives away.

HE automatic salesman at the gasoline pump had been in operation about ten days, when the Red Head and Valvy found it necessary to spend a day in town, leaving Barney in all his glory as both service and sales manager.

When they came back that evening, however, they found the glory somewhat dim. Barney had a good prospect for some electrical devices but had failed to sell him.

"Who was it?" Valvy wanted to know.

"Silas Crabstick," said Barney. "He was afraid a cigar lighter would take so much current it would wreck his battery. Perhaps you remember the old bird. He's the gink who always says the old bucket type pump is se good he doesn't need an up-to-date water system."

"It's a wonder he has a car at all," said Red. "Perhaps he would be hard to sell on any equipment, but here's one point you might have brought out. You might have asked him if using his pump would make the little buckets on the chain wear out, or whether just leaving it with a little water in each would rust 'em faster. Then if he happened to get the idea you could tell him that a battery works about the same way and keeps in condition with moderate and reasonable usage better than it does when left standing.

"That's one thing you have to do in selling. You have to be able to overcome the arguments and misconceptions of the people you wish to sell. We can not always go into the technical details but it helps in giving the general idea if the salesman himself knows exactly what happens.

Few Short Runs

"There is one thing strongly in our favor in selling electrical devices, and that is the way cars are driven. Even in the city there are not many cars used for short runs because the distances are considerable, while out here nearly all the cars are driven several miles each trip. That means that the generators are normally set with charging rate somewhat reduced so that there is some margin for the current needed by extra equipment.

"We might take up each item of equipment and see what it means in current consumption. The cigar lighter looks as if it would be a drain on the battery for it draws about 7 amperes. If you take your watch and time a fellow lighting a cigar you will find that even the most deliberate will hardly take over 12 seconds or a fifth of a

minute.

"If we figure on boosting the generator charge rate one ampere it means that the current used in lighting the cigar would be replaced in running about a minute and a half. Some of the other items take more current, although none of them will cause any real trouble.

Plenty Of

The Red Head Gives Ba Proves Auxiliary Lamps, Cigar Lighters and the tively Little Current-

By A. H.

"The spot light probably draws the most current aside from the cigar lighter and being on for a longer time takes more energy from the battery. With a 21 candle power bulb it will draw a little under 2.5 amperes, but the spot light is not used continuously. Only in bad going at night or when passing other drivers, so that even if the charging rate had to be increased two amperes it would be worth while, considering the protection it gives on roads where the ditch is steep and the lights do not show the ditch clearly.

Lights Used Intermittently

"The other lights are more conservative and most of them are used intermittently. The dash light for example which takes about half an ampere is usually turned on only to see a road map or to get the speedometer indication. The stop light, while drawing about .8 ampere with a 4 candle power bulb will also have little effect because it is used so little and if a customer is fussy about it, the stop light can be connected so as to operate at night only, by attaching it to the tail light terminal.

"The windshield wiper is also quite economical in current consumption for the average type uses less than two amperes and of course is only required occasionally."

"I get the idea," said Barney after the Red Head had given some idea of the small current that various devices would take, but I have another question that bothers me." "What's that?" Red asked.

"I want to know just where is the best place to connect the various devices, taking everything into consideration."

"Let's make a diagram," said Valvy. "I'd like to have that explained, too. I know you can connect both wires at the battery, but when the terminals are bad its a mean job and in a short time the acid will eat the ends off of the small wires."

"All right," said Red. "Here goes for a diagram." And Bill Fixit's traveling expert proceeded to make one

that would apply to practically any car.

"All the cars we run across these days have grounded circuits so we know that one terminal or wire of the device must be grounded. In the case of a light mounted on a fender, the mounting screws usually make a good enough ground. It is usually advisable however to scrape off the paint or enamel to be sure of a good connection. For the live end of the circuit there are several possibilities.

"In this sketch there are six places indicated. No. 1 shows connection at the battery. Such a connection does not permit the ammeter to read the current used, is hard to make, with most battery terminals, and has the disadvantage that the wire and terminal are subject to corrosion. No. 2 is better in that the corrosion trouble

"Iuice" For Electrical

rney a Selling Lesson and Windshield Cleaners, Like Consume Compara-Hookup Diagram Shown

PACKER

is reduced while No. 3 is about the same as No. 2 except that it is usually easier to make the connection.

"No. 4 is the first place we strike where the conditions are ideal. We have an accessible terminal, it is small enough so as to fit the ordinary terminal we use on a small wire and the current used by the device will register on the ammeter. For example if a stop light is installed and the owner of the car ever wishes to check to see if it is operating, he only has to watch the ammeter and push the brake pedal down. If the ammeter shows a little flicker indicating additional discharge current it proves the light is working.

Accessories

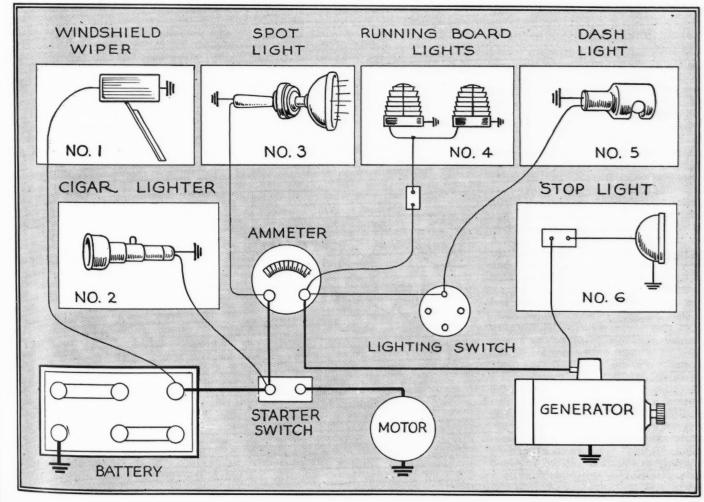
"The No. 5 position at the lighting switch is the same as the No. 4 position electrically except for a very slight loss of voltage in the wire between ammeter and switch and the same holds true for the No. 6 position. There will be this difference however, that the No. 6 position will give a voltage a little higher than No. 4 while No. 5 gives a little lower voltage when the engine is running."

"Looks like No. 4 is best," said Barney.
"That's what I think," said Red. "And if you remember the circle diagram we were talking about some time ago you will see that the No. 4 terminal is the center of this circle, for it is the junction point of the lighting, the generator and the battery circuits."

"Generator circuits," said Barney, "those are the things I know least about. When we get a little time, however, I want you fellows to take up some of the simple generator principles so that on any job, I will be able to figure the details for myself.

Note: The circle diagram was shown in the Bill Fixit story published March 11, 1926.

Typical circuits on the modern motor car, showing various places that electrical devices may be connected. Six possible connections are indicated, but the No. 4 position wins the prize. All of the devices shown could have been connected at that point.



April 22, 1926

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Stewart Motor Corporation Adds Heavy Duty Six-Cylinder Truck

THE Stewart Motor Corp., Buffalo, N. Y., announces a new two and a half ton truck which is characterized as being a fast, heavy-duty six-cylinder commercial vehicle. The chassis list price is \$3,200 at the Buffalo factory, plus tax.

The new truck is known as the model 19 and takes the place of the model 7X which has been discontinued. It is built to answer a demand for a truck of this size of rugged construction that would operate smoothly and economically with great power at slow speeds and at the same time be fast on the road, without excessive engine speed.

The engine is a Lycoming with a four-bearing crankshaft 2¾ in. diameter, 3 point, suspension, 3½ in. bore and 5 in. stroke. Sixty-five horse power is claimed for it on block tests. It has a Swan manifold and full pressure feed lubrication with automatic control for all speeds. The crankshaft bearings are bronze backed. The intake valve opening is 113/16 in. in diameter and the exhaust valve 111/16 in. Valve stems and tappets are automatically lubricated by oil pump.

A Zenith non-adjustable carburetor is used, equipped with an Alemite gascolator. Ignition is by a Remy distributer

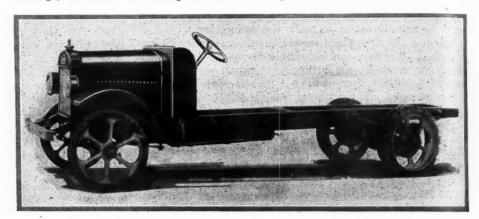
located on top of the cylinder head. The starting and lighting system is also Remy standard equipment.

The rear axle is a Timken, worm driven, full-floating type. The gear ratio is 7.25 to 1 standard. The clutch is the fourteen dry-plate multiple disc type, automatically adjustable for wear.

The drive shaft is 2 in. tubular type with three joints, equipped with large metal-covered dust-proof housings. The center joint is supported on large roller bearings, contained in dust-proof and

oil-tight housing. Wheelbase of 165 in. as standard is used but the truck will also be issued in 145 in. and 190 in.

A vertical tube type cast tank radiator is used in connection with a water pump circulation system and is supported on rubber shock absorbers. An 18 in. steel fan is used. The truck comes equipped with electric horn, tool kit, grease gun, jack, front bumper and an instrument board bearing ammeter, oil gage, starting choke, lighting and ignition switches, and speedometer.



Side view of Stewart model 19, 21/2 ton heavy duty 6-cylinder truck

Conventional Spring Absent in Adams Suspension

In the springless suspension developed by the Adams Springless Suspension Corp., New Haven, Conn., the rebound and road shocks are absorbed and dissipated by rubber. There is no similarity between the usual leaf spring and the Adams Suspension.

In place of the usual spring there is substituted a stiff pressed steel arm, attached rigidly at the axle and terminating at the other end in a drum. The interior face of this drum is formed with radial serrations or teeth. On the side rail of the chassis is bolted a steel disk, also formed with steel teeth, corresponding to the teeth on the interior of the drum. Through the axis of the disk and drum runs an alloy steel bolt, threaded at each end and fitted with castellated nuts. Between the drum and the disk is placed a molded rubber cushion of ring shape, with radial teeth on each face, adapted to fit in the spaces between the teeth on the fixed disk and the movable drum. The three members are assembled and bolted tightly together, compressing the rubber into the intervening space between the disk and the drum and outward around the circumference of the disk. Therefore, according to the manufacturers, the inside periphery of the drum rides on rubber. To insure long life, the rubber is treated with a preservative compound.

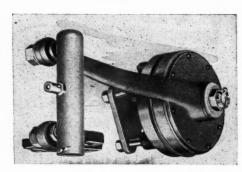
When the car wheels pass over in-

equalities in the road surface, imparting a rotary motion to the drum, the resultant resiliency does not arise from the flexibility of the radial teeth in the cushion, the manufacturers state, the function of these teeth being to hold the central ring of rubber in place. Resiliency is caused by the circumferential stretching of the central ring of rubber, similar to the stretching of the ordinary rubber band.

The same general principles of the

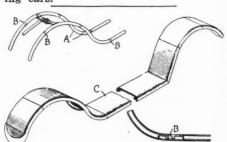


Chassis equipped with Adams Spring Suspension



Adams shock absorber

Adams Springless Suspension have been applied by the company to shock absorbers and bumpers and the suspension is applicable to any vehicle and to the landing gear of airplanes. At the present time it is being supplied for Chevrolet, Durant, Essex, Ford and all leading cars.



Fender construction in which a pipe framework is used covered with sheet metal.

Novel Fender Construction Uses Pipe Framework

To compensate for the increasing tendency to damage, a new style fender has been invented by Bernard Nelson of Chicago.

It consists of a pipe framework, A, covered with sheet metal in such a way that damaged sections may be removed and replaced by simply unscrewing the right and left threaded union couplings, B. These fenders may be connected to the ordinary type running board or include the running board C in their construction.

Merco System for Hydraulic Brakes

THE Merco fiquid saving replenishing and bleeding mechanism for hydraulic brakes is a combination of devices designed and developed to perform certain desirable functions in hydraulic brake systems.

Following are some of the claims made for it:

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It eliminates any concern about the expansion or contraction of the brake fluid.

It carries 10 times as much brake fluid in reserve, giving a factor of safety of 10 to 1.

It stops all loss of fluid from the master cylinder.

It eliminates all heavy loads on the master cylinder cup.

It makes the master cylinder 100 per cent efficient at all times.

It makes it possible for one person to bleed lines easily and with absolute efficiency.

It gives the driver of the car visible evidence of the condition of the brakes at all times.

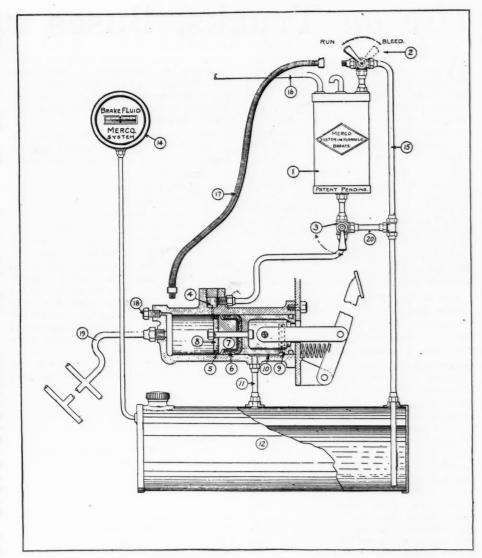
Vacuum Tank Is Used

In the Merco system the present type of fluid replenishing tank as used on hydraulic brake systems is replaced with a conventional type of vacuum tank. The discharge pipe of the vacuum tank is connected to a series of small ports in the master cylinder which are uncovered by the master cylinder piston when the brake pedal is in the off position. With this arrangement the fluid supply is always floating on the line. If the fluid expands in the system the excess backs up into the tank, if it contracts, fluid from the tank goes back into the line. The value of this is obvious.

The supply line to the vacuum tank is connected with a reservoir under the dust shield on the side of the car where the master cylinder is located. This reservoir is so located as to be below the master cylinder. A drain sump in the master cylinder is connected with the reservoir by a convenient tube so that any liquid which can possibly get by the master cylinder piston is drained back into the reservoir rather than lost out of the system

Thus the reservoir serves the double purpose of saving the fluid and always maintains a supply of fluid for replenishing the brake system which is taken up by the vacuum tank as needed, from where it flows by gravity into the master cylinder as occasion requires.

The piston as used in the master cylinder of the Merco system is of novel design. Instead of the conventional type of piston and cup, a built up piston carrying a cup, held in place by a follower is used. This makes a ring land for the piston ring which is held in place by a follower serving as the head of the piston as well. In this design the piston ring which is of the two-piece-leak-proof type lapped in, takes all of the load on all sudden and hard applications of the brake. No load comes on the cup at any



Diagrammatic view of the Merco system for Hydraulic brakes in which 1 is the vacuum tank, 2—two-way valve, 3—two-way valve for discharge line, 4—ports into master cylinder, 5—piston ring, 6—master cylinder cup, 7—follower for master cylinder cup, 8—follower for piston ring, 9—drain groove, 10—sump, 11—drain tube, 12—reservoir, 14—gage for fluid supply, 15—supply line, 16—suction line, 17—hose for bleeding wheel cylinders, 18—master cylinder bleeder screw, 19—main supply line to four wheels, and 20—tube for draining vacuum tank.

time until it is past the replenishing ports in the master cylinder.

One of the features of the Merco system is the system of bleeding the brake lines to remove all air. A two-way valve is provided at the top of the vacuum tank in the supply opening. In its normal position the valve lever with indicator is on the run side which connects the vacuum supply line with the reservoir. To arrange for bleeding the lines the lever with indicator is moved over to the bleed side which connects the supply line with a nipple that takes an ordinary air hose as used for inflating tires from the car, this hose being long enough to reach all wheel brake cylinders. Naturally the vacuum tank is full of liquid and the float must be lowered to make the vacuum tank function. The liquid level in the tank is lowered by means of a twoway valve in the discharge line, which when moved to a position at right angles to its normal position allows the liquid to drain from the vacuum tank back into the reservoir. Just as soon as the float drops the vacuum tank begins to function

The liquid remaining in the vacuum tank is floating on the line through the ports in the master cylinder. The bleeder hose is connected to the bleeder screws in all the wheel cylinders in turn and with the motor running the bleeder screws are opened. The supply line takes the fluid by suction from the bleeders into the vacuum tank where it goes back into the system again through the master cylinder ports. Any air in the fluid is taken out as it goes through the vacuum tank connection into the intake manifold of the motor.

The H-W Filtrator Is Designed for Use on Trucks, Buses and Tractors

A^N oil filtering device designed primarily to be "built-in" and permanently attached to an engine and a filter type air cleaner has been placed on the market by the Rich Tool Co., Detroit. These units known as the H-W Filtrators for oil and air respectively were developed by Col. E. J. Hall and Chas. A. Winslow.

For the replacement market or where existing engine design makes it impracticable to use the "built-in" type, a modified form oil filter is provided for mounting on the dash. Both types are offered to cover a wide range of engine sizes and types.

Chiefly on account of its size, the air filter is restricted to use on trucks, buses, tractors and industrial engines.

One of the features of the new oil filters is that no parts have to be renewed or replaced during the life of an engine and it is claimed by the manufacturers that the crankcase oil need not be drained if directions are followed for cleaning the filter. After two or three thousand miles, the drain plug on the filter should be unscrewed and the sludge, carbon, dirt and water disposed of. By holding an ordinary tire air hose connection to the valve on the top of the filter, the air pressure rids the filtering medium of impurities and these pass out through the drain opening. Except that there are no exterior pipes employed, connections being made through the flange which bolts the "built-in" filter to the crankcase, the operation and principle is the same as for the dash type which is described herewith.

As will be seen from the cross section drawing, oil enters the filter through the short pipe and fills up the interior of the

device. Under pressure from the engine oil pump, the lubricant is forced through the filtering medium and from there passes through holes in the central tube where it is finally lead to the main bearings of the engine.

The filtering medium consists of from 15 to 20 felt washers compressed between two steel disks by a coil spring exerting a pressure of 80 to 100 pounds. Both the number of washers and the amount of pressure are governed by the respective size and design of filter. Oil in penetrating the felt washers leaves an asphaltic or tarry matter on the outside of the felts and the heavier particles finally drop into the drain sump which has a large capacity. Water globules coming in contact with the surface of the matter on the filter also run into the sump. When through neglect to clean or an unusual accumulation of foreign matter the filter becomes inoperative, a differential valve or by-pass valve at the base of the inlet pipe comes into operation and allows the oil to pass

Below: This view shows the interior of the dash type filter and the direction in which the oil circulates. The ball valve at the bottom comes into effect if the filter is clogged, enabling the oil from the pump to pass to the bearings without entering the filter proper

AIR CLEAN OUT FITTING

DRAIN

OUT

No. 4

AND CLEAN OUT FITTING

No. 4

AND CLEAN OUT FITTING

SHEET STEEL PRODUCTS CO.

directly to the bearings without restriction or loss of pressure.

The drawn shell which encloses the filter unit is held against a cork washer at the base by a large nut screwing upon the central tube supporting the compressed felt washers. Into this hold-down nut is built an air valve which allows the air pressure to pass through the holes in the tube and come out through the felts bringing all foreign matter with it. To clean the filter it is necessary to only unscrew the drain plug and the dust cap on the air valve and apply the air pressure. By unscrewing the nut enables the shell to be detached exposing the filtering medium.

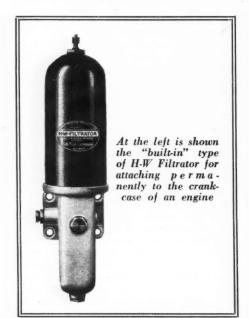
In the H-W-Filtrator for air, oil is mixed with the air before it passes through the filtering medium of the air cleaner on the way to the carburetor. At the base of the cleaner over a quart of ordinary engine oil is contained in the circular reservoir. Air enters through an opening of 3 in. in diameter in the resevoir and in passing through louvres in the curved baffle plate the air is deflected so that it comes in contact with the oil. A coarse wire screen across the aperture prevents leaves and similar matter being drawn by the suction.

The air-oil mixture is drawn through an inverted cone shaped filter medium which is lined with hair compressed to a thickness of one inch. Both inner and outer surfaces of the inverted cone are formed of perforated sheet steel which retains the hair in place. The air mixture in passing through the hair rids it-

(Continued on next page)



Above is shown the air filter which is developed for use on trucks, buses, tractors and industrial engines. Air enters at the bottom and passes to the carburetor cleaned at the top. By loosening the screw the cover comes away exposing the entire filtering medium



Model 53 Bus Chassis Announced by White Company

A NEW small bus chassis, the White Model 53, especially designed in answer to the demand for a vehicle of smaller capacity than the standard size coach but like it in road performance, low line, comfort and riding qualities, is announced by The White Company, Cleveland.

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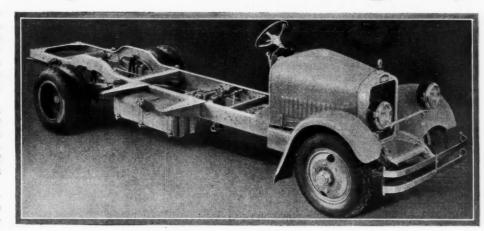
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It has a wheelbase of 180 inches. It may be equipped with various styles of bodies with baggage compartments and seats for 14 to 16 passengers for intercity service, or bodies with capacity of 21 passengers for city service, without baggage compartments.

Budd disc wheels are standard equipment on the model 53. Low pressure balloon tires, 34x7.50 in., also are standard—Single front and dual rear. Optional tire equipment may be high pressure cord, 34x7 in., single front and rear.



White model 53 small bus chassis which has a wheelbase of 180 in. to accommodate bodies seating from 14 to 21 people.

Use of Clutch Puller Saves Bearings

Brown-Lipe Representative Severely Censures Practice of Prying and Pounding to Loosen Units

Motor Age recently received the following communication from Henry A. Pierce, Chicago representative of the Brown-Lipe Gear Co., Syracuse, N. Y., regarding the proper way of removing a clutch. The writer of this communication brings up some points of interest which we believe will be of help to every mechanic. His communication follows:

"The writer has for several years read with interest the many helpful articles published in Motor Age respecting labor helps in doing mechanical jobs on automotive equipment

motive equipment.
"During the past for

"During the past few months the writer has called at a great many service stations, garages and fleet owner repair shops and during these calls has noticed the way in which repairmen generally re-

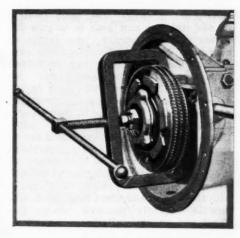
H-W Filtrator on Market

self of the oil and dirt particles and the solution of grit and oil runs down the outer side of the perforated form into a trough where it drains back into the reservoir with the sediment settling at the bottom. By loosening a single screw near the top of the cleaner, the entire covering of the filter may be removed exposing the filtering medium and enabling the sediment to be removed and fresh oil replaced.

move a multiple disc clutch from the drive gear of a transmission. The procedure generally after the transmission has been removed from the vehicle together with the clutch, is to remove the hand hole cover, remove the nut on the end of the drive gear that secures the clutch to the drive gear, then put a pinch bar down through the hand hole and pry against the rear face of the clutch assembly and at the same time pound with a good size hammer on the pilot end of the gear to loosen the clutch assembly from the tapered end of the drive gear. This is indeed quite a serious practice.

"In a transmission there is a bearing supporting the drive gear in the front of the transmission case and in the cup of the drive gear there is a bearing supporting the front end of the main shaft; while on the rear end of the mainshaft there is a bearing supporting this rear end of the mainshaft in this transmission case. Therefore, it is obvious that any pounding on the pilot end of the drive gear is damaging to some degree one or more of the bearings referred to and generally damages quite severely the bearing used in the cup of the drive gear.

"Pounding on the pilot end of the drive gear is damaging to this pilot end, as the pilot end of the drive gear originally is held to very close limits within .0002



Clutch puller, showing its application to a multiple disc clutch when the assembly is to be removed from the shaft. A puller of this kind does the job quickly and without damage to the parts.

in. so that the proper fitting of the pilot end of the drive gear can be secured in the inner race of the pilot bearing that supports the drive gear in the flywheel recess. Pounding upon this pilot end distorts it and thereafter a satisfactory fit of the pilot in the pilot bearing is rarely secured.

"All of this difficulty and chance that is taken can be very easily eliminated by the use of a clutch puller, and the writer is taking the liberty of writing this letter to you and supplying you with a cut of a transmission showing a clutch puller in use. Trusting that this information and cut can be used for publication in Motor Age and that it will be of interest to your readers as other articles of like nature have been of exceptional interest to the writer."

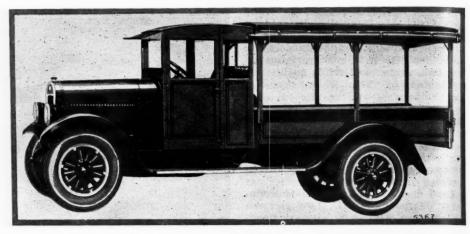
Easier Steering, Lower Bodies For New Reo 11/4-Ton Speed Wagons

In the new series Reo 1½ ton Speed Wagon several improvements designed to better the general appearance, provide easier steering and a lower body height, are the special features. In conjunction with these changes prices have been increased \$55 on both four and six-cylinder models, the former now listing at \$1,090 and the six at \$1,240. On the larger 2½-ton Speed Wagon there have been no mechanical changes and the price remains at \$1,985.

Greater Hood Length

The appearance of the lighter Speed Wagon has been enhanced by giving greater length to the hood, the adoption of a cowl, an improved radiator suggestive of passenger car design, redesigned cab and lower bodies, and new type front fenders. The outstanding detail is the improved steering gear which employs an intermediate gear in a pinion and sector type steering mechanism, the entire unit being enclosed in a grease and dust-proof housing. The main thought in adopting the new gear is to give the driver the same comfort and degree of easy handling as found on passenger cars so that the new models can be driven long distances by the same driver. By the use of the intermediate gear in the steering mechanism, the snapping action. of the steering wheel due to road irregularities is practically eliminated. Additional room in the cab is provided for by making the steering column adjustable so that it can be moved 3 in. forward at the upper end. In this connection the wheel itself is now 18 in. in diameter with the automobile short type spark and throttle controls mounted above the wheel and an unusually large horn button placed in the center.

In order to get smoother lines in de-



The express body on the new Speed Wagon chassis. Improvements made in the construction have reduced the floor height to enable easier loading and unloading.

veloping the new series it has been necessary to remove the gasoline tank from its former position on the dash and place it under the driver's seat. A compartment to the right of the tank is formed for the battery and the latter is readily accessible by removing one of the divided cushions. In the space left between the two seat cushions the fuel gage of the gasoline tank is located. Removing the entire seat back exposes another compartment wherein a large supply of tools can be carried. Fuel is fed to the carburetor by a Stewart vacuum tank bolted on the inside of the dash, and the capacity of the fuel tank has been increased by 8 gal. to 19 gal.

The cabs are provided with one-piece windshields, sun visors and cowl ventilators. All instruments including the ignition switch and choke control are mounted in a neat oak finish panel on the instrument board. Windows in the doors are operated by crank type handles and the curtains covering the opening in the rear may be drawn up from inside of the cab. To simplify night driving the Speed Wagons are regularly equipped with the two-filament type of headlight bulbs of the same design as used on the passenger car models.

Lowering the body heights has reduced the energy required in loading and unloading. On the express bodies the wooden sills have been discontinued and reinforcing irons used in their place. These irons extend the full length of the body on each side and connect the outer bottom boards with the body side boards.

Big Load of License Plates

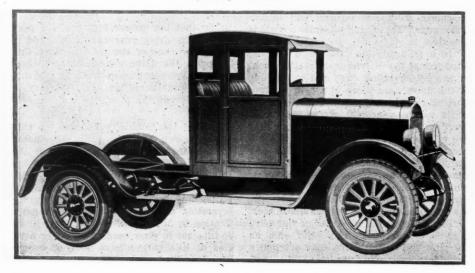
RALEIGH, N. C., April 16.—Four car loads of new automobile license plates have been received by the license bureau of the department of revenue and three additional cars will be received.

The first fifty plates will go to state officials, as usual number one going to the governor. According to the law the governor pays \$1 for his license. All other officials pay the regular fee.

A total of 382,853 cars have been registered to April 1. This is an increase of 43,647 cars in the past ten months, the total June 30, 1925, being 33,206.

Collections for the year, March 31, 1925, to April 1, 1926, of the bureau exceed those of the previous year by more than \$3,000,0000. Gasoline tax and automobile license tags for the year totaled \$12,-166,235.99 as compared with \$9,031,384.52 for the previous year. The balance of the increase is shown in the theft fund collection.

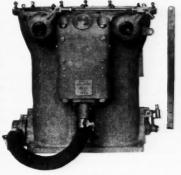
The new 1½ ton Reo Speed Wagon chassis showing the newly designed radiator, longer hood, the addition of a cowl, newly designed front fenders and improved cab.



Heap Big Injun "Chief Pontiac"



AN ACROBATIC MOTOR. Not a pane of glass was broken, or even cracked, in the sedan shown below, which executed a half-somersault while being driven on an icy smallest motorcycle carburetor of the company.





April 22, 1926

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Knowing What Each Flat Rate Operation Includes Avoids Undercharges

Edited By B. M. Ikert

Things That Help Flat Rate

Analyze Wording of Each Operation Before Quoting Customer

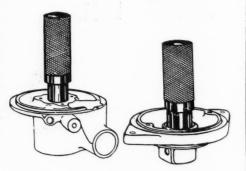
ALTHOUGH the working scheme of the flat rate basis for selling maintenance work is pretty well understood by the majority of those connected with the repairing of motor vehicles, every now and then a case comes up where the mechanic, shop operator or the customer does not fully understand, or does not correctly interpret the operation or operations.

Most of the flat rate systems worked out by the factories and dealers list, for example, an operation calling for the removal and replacement of the front axle center or I-beam as it commonly is called. For this a flat price is given, say \$6.00. This price does not include any work done on the parts after axle center has been removed. Such operations must be listed and charged for in addition to the removal and replacement of the center.

It is well to get these "lead" or "major" operations well understood, because almost always there will be additional work that must be sold along with them. But the customer does not always see it in this light.

For example a job may present itself calling for the straightening of the front axle I-beam. In the list of flat rate operations this straightening job may be quoted at say \$3,00. This, however, is not the total charges to the customer, inasmuch as the axle I-beam must first be removed, straightened and replaced, which of course, means that the king pins also have to be removed and replaced. Consequently the \$3.00 must be

Many of the smaller Delco generators are equipped with Durex plain bearings. In replacing any of these bearings it is not advisable to ream them, owing to their special composition and methods of manufacture, so these plugs made by Delco are provided to assist in properly assembling them in the casting.



added to the \$6.00 or whatever the price may be for the axle center removal and replacement.

Care must also be exercised by the person quoting the customer a flat price when it comes to selling operations, which on the face of them may appear as a minor operation, but in reality require considerable extra work.

For example, the renewal of a front main bearing to the customer may not sound like quite an involved operation, but when he is given to understand that this operation in most cases necessitates dismantling and reassembling the engine, he then will understand the reason for the apparent high cost of the work.

In order to prevent any misunderstanding between the customer and the shop, it is necessary for the service salesman or whoever quotes the customer prices to analyze the wording of the various operations and at the same time visualize the particular car construction for which the prices are intended.

New Parts for Old

New parts and the flat rate system are closely associated. It is a good thing to bear in mind that in many cases it is cheaper to put in new parts than to try to re-condition the old parts. This procedure naturally helps the selling of the flat rate because it is so much easier to quote a customer on labor plus parts. Where a part has to be re-conditioned which often means sending it to some other shop, the charge is figured on a time basis for which at best it is only possible to give a guess. There are shops, however, who have established flat rates for re-conditioning all parts likely to wear, but in the majority of cases this work is figured on a time

Renewing Main Bearings of Engine

Columbus, Ohio.

To the Editor of Motor Age:

I was recently told that it is possible to reduce considerably the price on renewing the main bearings in a Dodge Brothers engine by taking off the oil pan, removing the main bearing caps, knocking out the upper bearings and then sliding in the new bearings around the crankshaft. After this the lower caps are replaced. I can see that this will lower the cost considerably, but is it a good practice to do this?—D. I. F.

There is no doubt but what it is possible to replace the upper bearings of the engine in the manner you mention, but what assurance is there that the bearings are properly lined up? To us it looks pretty much like a make-shift job. If the upper bearings are not in line, then tightening the lower caps will surely force the shaft out of line and the bearings will soon pound out. We believe the best plan when renewing main bearings is to always "take the job down," because then you know exactly what you are doing. Probably if only the center main bearing needs replacing the method you suggest might work out all right.

FLAT RATES

for

Ford Rear Axle Operations—Cont'd.*

Motor Age's Flat Rate Forum No. 61

Offic	~	harge
117	gnation C Straighten rear radius rod (in ear)	8 1.0
118	Install outer roller bearing each (sleeve 75c each side extra)	1.00
119	Replace rear axle shaft, drive shaft pinion or drive gear (no other	
110	work necessary) (not guaranteed)	
120	Replace rear or front spring clip, each.	
121	True up emergency brakes—each 75c.	1.50
124	Replace universal joint gasket	2.50
	Operations 96 and 99 combined on one order.	
	Operations 96 and 102 combined on one order.	
	Operations 96 and 110 combined on one order.	
	The following extra charges should be made for special equipment:	
	Axle overhaul when necessary to remove special trunk racks or	
	truss rods	
	Axle overhaul when car has shock absorbers	1.50
	Axle overhaul when car is equipped with special hub brakes	
	Parts brought in:	2.0
140h	Overhaul rear axle	7.50
42h	Overhaul differential assembly with shafts.	3.5
143h	Remove ald and appear and come or are charter and	.50
1420	Remove old and press new gear on axle shafts—each	
LTOU	Put in service axle	3.5

She READERS' CLEARING HOUSE

Questions And S Answers



On Dealers Problems

Blows Out Cylinder Head Gaskets

Q.—We are writing you for information in regard to a Kissel touring car that blows cylinder head gaskets both inside and out. This car has had five cylinder head gaskets installed at different garages. The cylinder head is in good shape. We cannot account for this trouble so please advise in regard to same.—Mining Town.

Either the top of the cylinder block face is warped or the cylinder head itself is warped or distorted. To test for the condition mentioned remove the cylinder head and gasket. Clean both surfaces very thoroughly with a putty knife and finish with gasoline and a dry rag. Apply a fairly thick coating of Prussian blue all over the top of the cylinder block casting on the face where the cylinder head bolts to it. Now apply the cylinder head and screw it down tightly. Tighten the bolts evenly starting with the center row and working out. When all have been set up evenly and snugly, loosen them and remove the head. Note the amount of blue deposited on the cylinder head from the cylinder block. If the faces of head and block are true there will be an even transfer of blue from the block to the cylinder head. The chances are you will find that at certain spots the blue has not touched the cylinder head.

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Look for high places on the cylinder block around the studs. When a stud is strained it is probable that the material of the cylinder block adjacent to it is pulled up slightly thus preventing the cylinder head from coming in contact evenly with the cylinder block. If the cylinder head does not show blue all over its face after the test it will be necessary to remove all of the cylinder head studs and lap the head to the block with a fine valve grinding compound. At the time when the studs are out it would be well to counterbore or countersink each of the cylinder head stud holes slightly so as to prevent any ridges forming around the studs when they are pulled up tight.

ADJUSTING BUICK VALVES

Q.—Advise the proper way to adjust Buick valves, with engine warm and idling or with engine warm, but not running.—Gate City Motor Co., Winona, Minn.

Adjustment may be made with engine running or not running, but in either case the engine should be hot.

One method is to turn engine with hand crank until intake valve closes in the cylinder where adjustment is being made. Then remove cover from inspection hole in flywheel housing and continue cranking until top dead center or "1-6" mark on flywheel may be seen through the inspection hole. Both valves may then be adjusted by means of adjusting screw and lock nut on end of rocker arm and clearance between rocker arm and valve stem should be .006 in. to .008 in., the latter measurement being preferable. Be sure that lock nuts are set up tightly.

CHECK CENTER MAIN, UPPER HALF Q.—Do you know of a few of the late 1923 Chevrolet cars developing chankshaft whip, showing up as a heavy knock in or near the front main bearing?—Egbert's Garage, Henderson, Colo.

Considering the thousands of Chevrolet cars being successfully used we do not believe this is a characteristic trouble. Rather it is due to some mechanical condition which the mechanic has failed to correct. It is probably that the upper half of the center main bearing needs replacing. This bearing is lubricated from the pump and it is possible that the oil line has been clogged up at some time. If the journals of the crankshaft are round and if the crankshaft is straight and if the bearings are properly fitted there should be no trouble.

Connecting Up a Tungar Rectifier

-We have recently installed a Tungar Q.—We have recently installed a Tungar rectifier and as we did not receive any instructions with the machine would like to have you tell us how it should be operated.—C. B. Fitch, Oil Hill, Kansas.

The positive terminal of the battery line should be connected to positive rectifier terminal and negative to negative.

The dial switch handle should now be turned to the left (counter-clockwise) as far as it will go-to the lowest position. Now turn on the alternating current by the snap switch on the panel. This will light the filament. Next turn the dial to the right (clockwise) watching the ammeter until the needle indicates the proper charging current. This current should never be over 6 or 7 amperes and if the lower figure is used the life of the bulb will be longer.

Q.—Tell us where we can get some good books on battery and electrical equipment

This information will be given by separate letter.

——— NEADERS" CLEARING HOUSE —

LEGAL QUESTIONS ANSWERED

By Wellington Gustin

MAY NEED COURT TO SETTLE

Q.—I would like to have you answer the following legal question:

I am stating facts just as they are. We contracted to overhaul a Buick Six motor for \$65. We had to tow the car to the garage and we let the party who owned the car use a Ford we had on hand. When we finished our job we discovered that the differential was breiten and rethat the differential was broken and required a new pinion and ring gear. This car is owned by a man and his nephew (the nephew is of age). We told the

(the nephew is of age). We told the nephew about the ring and pinion gear and he said it wouldn't run the way it was so he thought we had better go ahead and fix it. The uncle also must have understood it as we did for he came in the next day and inquired as to when his car would be ready.

When we finished the job he refused to pay for the rear end job as he claims it was O. K. when it came to the garage. We only charged him \$65 for motor overhaul and \$20 for gears and labor and a few accessories he ordered. He served a formal notice on us offering \$65 as full payment. The charge we made is not unreasonable. Can he force us to give up the car? The car is in our possession. What action would you advise us to take?—Frank Cinq Mars, Concrete, Wash.

It appears that your customer is will-

It appears that your customer is willing to pay for overhauling the car at the figures previously agreed upon. You proceed to do further work upon the car and to furnish parts on orders from one of the part owners. Then your lien covers this additional job. The rule is that if an owner stands by and knowingly permits repairs, he may not later say he did not agree to have such repairs made. An agreement is implied. But if the nephew was actually a part owner, his order to you would be sufficient to give you a lien on the repaired car.

But what about the customer's claim that the differential was O. K .- was not broken when you took car to overhaul? This may be a question of fact. If you deny his allegation you can see how it may require a court to settle that question. Of course if the differential, etc., was broken by your negligent handling of the car, then the loss should be yours. But if you are not to blame in the matter, and your charges are reasonable, then you may retain the car until your claim is settled, or you may deliver the car and file notice of your lien claim within 60 days from date of delivery in the office of the auditor of the county in which the car is kept, and your lien will remain good against the car. If customer starts action to recover the car, then you are in court and can take advantage of the lien in your favor.

April 22, 1926

Planning Your New Building

Another Builder Using a Hill Side

Q.—I am going to build a two story garage on a corner lot and I want to build this garage so we can run off the upper end of the street into the 2nd story. I call your attention to the two-story building on page 31 for the Harrisburg Motor Co., shown in the Feb. 4, 1926, issue. We will probably have to have our entrance in front instead of side, but would rather have it on the side. We want a showroom, office, stockroom, washroom and we wish to install steam heat. The size of the building is to be 50 by 100 ft.—West Virginia Reader.

On account of the sloping condition of your lot we have been obliged to design you a special building. Noting that you have 180 ft. of frontage, we have set the building back 20 ft. from the side street, first to give space for a ramp to the first floor as the position of the door here will be 21/2 or nearly 3 feet below the surface of the road. This 22 ft. will allow space for a filling station as well and while the filling station driveway here will correspond to the street in pitch, we do not believe it would be great enough to be any great disadvantage. The entrance to the second floor, if we interpret your sketch right, will have to be at the rear of the building over a built-up incline that swings around from the side street. This floor should be at least 13 ft. above the first floor and we figure that the road at the rear end of the building would only be about 5 ft. 10 in. above the first floor. This would make almost too much difference to have a ramp directly into the end of the building. Entering at the rear you also gain two car storage

DISCONNECT THE STARTER CHAIN

Q.—How is the Dodge Brothers starter generator taken off? I seem to have trouble with the chain. There is not enough play in the chain even after loosening the eccentric ring and lock nut.—A. R.

It is necessary to take the chain apart. You can do this by turning the engine over slowly by hand while you watch the chain until you see the place where a small wire something like a cotter pin is used at one side of the chain. You will find that it goes through two of the pins. After you have removed this wire it is advisable to take a piece of wire and run it through a portion of the chain above the sprocket and then use another piece of wire and run it through a portion of the chain below the sprocket, so as to hold up the two ends of the chain. You can now remove the link which holds the two ends of the chain together and after the chain has been taken apart you can readily remove the starter generator. If you do much work on Dodge cars it would be advisable to get a Dodge Brothers instruction book.

spaces, a feature which is desirable.

We have stocked the parts with the accessories and provided a parts elevator to supply parts to the shop.

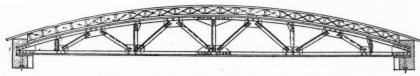
Would suggest that the basement entrance be on the outside of the building

By Tom Wilder

as this is always desirable and here conditions favor it.



There is no reason why you could not set the building back enough to have the filling station in front, but this always spoils an otherwise nice looking showroom.



Type of truss furnished for spans up to 60 ft. This one has the rafters resting directly on the truss.

A Stock Roof Truss for Automotive Buildings

Roof trusses have always been made like the first model of an automobile. The architect or engineer figures the dead and live load, snow load, wind load, then designs his truss and specifies his materials. Then the shop makes details and wooden templates and practically the whole force from foreman to riveters must study the drawings in order to insure proper construction. This is a long and costly process for which the builder must pay. With this situation in mind

Geo. L. Mesker & Co., Evansville, Indiana have developed a standard or what might be called stock roof truss of the bowstring type which is specially adapted to garage structures. They are furnished for building widths from 35 ft., varying by 2 ft. 6 in. intervals up to 102 ft. 6 in. and can be furnished in 18 different load capacities suitable for spacings up to 20 ft. between centers.

By producing hundreds of these trusses from one design and one set of working drawings and templates, the makers have placed steel trusses in the same low production cost class with automobiles.

Answers to Readers' Questions

How Motor Age Rendered Service in Texas

On Feb. 19, 1926, the Auto Wrecking Company of Gatesville, Texas, wrote to Motor Age telling of trouble being experienced with a Buick car. It seemed to be a case of oil pumping. However, after valves had been reground, pistons checked, oil scraping rings installed, and bearings adjusted the condition was not improved. Cylinders were then reground to .0025 in. oversize and new pistons fitted to a clearance of .0035. Connecting rods were tested and the dip of the rods in the oil was also checked.

After these efforts had failed to overcome the trouble the services of the Clearing House Department were called

Factory Branch Consulted

The Editor of this department makes no claim to solve all problems, but his contact with the service managers and other experts on various makes of cars gives him a source of information, which by means of the Clearing House is made available to Motor Age readers. In this particular case a telephone call to the service manager at the Buick factory branch brought in the needed information. The trouble was not in oil pumping at all, but in heavy fuel which was not heated sufficiently to burn. It then ran down past the pistons and caused the trouble described.

Research carried on at the Chicago branch which handles the Buick car had developed the fact that with heavy fuel encountered in the Texas field it was necessary to keep the carbon burned out of the hot spot and it was also necessary to adjust the rod which connects from the throttle lever to the hot spot lever so that it would be connected in the hole of the lever near the radiator. Another step recommended was to burn the carbon out of the manifold valve and to check this valve to see that it closed tightly. The change in the hook-up gave more heat to the fuel at low speeds and overcame the trouble.

In a letter dated March 15 the Auto Wrecking Company said:

"We certainly appreciated your letter of Feb. 23, regarding the Buick with which we had so much trouble. As soon as we received your letter we felt sure that you had hit the bull's eye. It so happened that the car was in the shop when your letter arrived, we having decided that the trouble must be in the carburetor. It was only a matter of a few minutes therefore to try your suggestion. We could tell the difference immediately and now after three weeks the car still runs fine and has all its new power and pick-up. The owner is delighted and certainly is giving us some

fine advertising. We have always been mighty well pleased with the Motor Age and now feel that our small investment in this excellent trade magazine has indeed brought a return of a hundredfold.

—P. H. Olson."

Gain In Speed Possible— Loss of Pep Certain

Q.—Would you advise changing the rear axle gear ratio of a 1924 Packard six roadster from the present ratio to a 3 to 1 ratio?—W. C. Francis, Care of Fred J. Tolley, 1003 E. 18th St., Tulsa, Okla.

No. The gear ratio supplied with the car is the one which the engineers have found to be best. When you use a lower ratio you can get higher speed provided the road is smooth enough and you have time enough to reach that speed. However, you get poorer acceleration and poorer hill climbing ability. You would find that on a hill all of the other cars would be passing you up. According to our specifications the standard ratio is 4.7 to 1. If you operate the car on very long stretches of comparatively smooth road most of the time, then you might change the gear ratio somewhat, but we would not go below 4 or 3.75 at the most. Even so you would sacrifice acceleration to some extent.

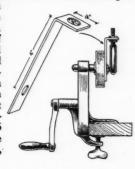
SHOP KINKS

That have been Found Useful

How to Repair a Moto-Meter

I have a method of restoring the liquid in a moto-meter when it has been forced to the top by a boiling radiator or has been jarred in shipping so that the column is broken. I use a bench grinder to which I attach a piece of strap iron. The iron is bent over and has a hole in the bent por-

tion through which I slip the moto-meter. A few seconds of cranking will bring the liquid down where it belongs and save a lame arm from trying to shake it down by hand.—E. C. Peat, 46 Park avenue West, Mansfield, Ohio.



Readers of MOTOR AGE are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published \$2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.

Axle Adjustments on a Chevrolet Model K

Q.—We have a Chevrolet model K 1925 car in which the adjustment of the gears in the rear axle is very poor. The toes of the teeth of the pinion do not come within one-quarter inch of the toes of the teeth of the ring gear, and there does not seem to be any adjustment that will move the pinion farther to the rear.—Tennessee Subscriber.

There is an adjustment but you have failed to find it. The rear cover of the differential housing should be removed and the differential adjusting nut at the left should be backed off so that the ring gear can go to the left and leave plenty of clearance. We are sending you an illustration which shows a sectional view of the axle. Just ahead of the axle and on the right side of the torque tube you will find a screw which should be removed. This is known as the bearing lock sleeve screw.

When this is removed you can rotate the lock sleeve so as to move the pinion farther back. As this has a right hand thread it should be turned right hand as seen from the front of the car or left hand as seen from the rear. When you have the pinion far enough back so that the teeth in the pinion and ring gear line up with each other, then you can move the ring gear to the right again so as to mesh the teeth together leaving just a few thousandths back lash. you wish to wash the grease out of the gears you can paint the teeth with white paint and operate the engine and rear axle with axle raised up on a jack. Then if you apply the brakes slightly it will put pressure on the teeth so that you can see where they are bearing.

There should be a bearing surface over the whole length of the teeth and it should be a little more pronounced showing a little higher pressure down near the toe. In operating you will then find that the pressure is quite evenly distributed. If the teeth bear more strongly at the heel you will find that breakage will soon occur.

STANDARD UNITS USED

Q.—I would like to get an instruction book on a Metz Master Six 1920. Want information on chassis, motor, ignition system and differential.—A. B. Powers, 1419 W. Kensington Ave., Independence, Mo.

No instruction books are available at this time. We have one of these but need it for our files. You should have no difficulty with this car if you are familiar with the average run of automobiles. The Connecticut ignition is similar to the ignition used on a number of other cars and the same thing applies to the other units.

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Answers to Readers' Questions

Only Two Rings On This Stock Piston

Q.—We have an R. & V. Knight model H, engine No. 22135, which pumps oil. It uses ½ gallon to every 50 miles. When the pistons were removed recently we found a small ring in each piston ring groove was broken. There were holes in the lower ring groove and also around the center of the piston. Are these holes supposed to be there?—G. M. Eide, Decorah, Iowa.

We are showing illustration of this piston which gives a cross sectional view. This illustration is taken from an R. & V. instruction book. You will notice there are holes drilled around the center of the piston to let oil work back into the crankcase and there are also holes drilled in the lower ring groove. Only two piston rings are used, these being of special two-piece construction. If you do not get successful operation with this piston we do not know any reason why you could not install a conventional light weight piston having three rings above the piston pin and a oil scraping ring below. With an oil scraping ring which permits oil to get to the back of the ring groove it is desirable to have holes so that the oil can go through and fall back into the crankcase.

FORD POWER MEASUREMENT

Q.—We would like a little technical information on the Ford engine. Have engine mounted on a block with a prony brake and fuel tank on scales. We are doing a little research work, attempting to find out how the power may be increased without any major changes or great cost and still have a reasonably quiet engine.

This depends on the fuel used. Ordinarily we recommend $\frac{1}{18}$ in. being removed and trying the engine, then an additional $\frac{1}{32}$ in. and a second reduction of $\frac{1}{32}$ in. making a total of $\frac{1}{6}$ in. taken off. In case too much is taken off an additional gasket may be used.

Q.—What is the Ford compression ratio? 3.9.

Q.—What is apt to be the effect of high valve lift on torque at low speed, on pick up and on top speed?

We believe the effect would be greatest in regard to top speed, second in regard to pick-up and third in regard to torque at low speed.

Valve Springs to Use

Q.—Would you advise using heavier valve springs or setting the pin higher on the valve stem?

We believe the heavier springs would be better although it might be advisable to get in touch with concerns making racing parts.

Q.—Can you give the name of concern manufacturing an oil pump for Ford?

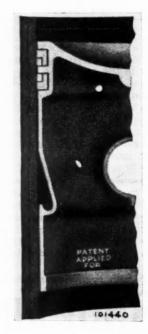
This information will be given by letter.

Q .- Will aluminum pistons carry heat

We intend raising the compression, increasing valve lift (by grinding the cam heels) and perhaps install light weight rods and pistons. What is the maximum that can be removed from the cylinder head when using gasoline alone?

We would not recommend removing any from the cylinder head if ordinary gasoline is to be used.

Q.—In using special fuel how much can be removed from the cylinder head?



Original piston used on R. & V. Knight

to the cylinder walls quicker than iron pistons and so help to prevent detonation?

The heat conductivity of aluminum is greater than that of iron and accordingly seems as if the results would be in accordance with your suggestion.

Q.—Can you supply factory specimen power curve for a stock Ford engine?—C. A. Harrington, 10 Brookside Park, Milton, Mass.

No. Information of this sort is not given out by the various automobile factories except in very rare instances. In your particular case the thing to do is to test the engine before you make any changes. We believe that you will get approximately 18 horse power, maximum, at about 1400 r.p.m.

KEEPING ENGINE OIL OUT OF AXLE

In the Reader's Clearing House section of the February 11, 1926, issue of Motor Age, Mr. Hartwell of Montgomery, W. Va., asked about a Ford leaking engine oil from the rear wheels. I have known two cars to do this and fixed one of them by turning the oil hole at the rear transmission bearing down. I then put oil grooves almost to the edge of the bearing. Since then have had no more trouble.—W. H. Bacheller, 22 Court St., Norwich, N. Y.

Eight Cylinder Engine With Persistent Knock

Q.—We have a Peerless eight that has a knock that sounds like a valve tappet with too much clearance. The engine has been reground and has had new pistons, rings and pins installed. The knock started after running 100 miles. New rings were tried without results. New valves and guides were tried in the third cylinder on the left side which seemed to cause the trouble, but this did not help. We then installed all new valves, rollers and pins, also new push rods and guides, then sent the camshaft to the factory to be checked up and again had the knock. It seems to be in the third cylinder on the left side as the knock comes each time this cylinder fires. We checked this up by watching the spark.—Hillers Garage, Pleasant St., Janesville, Wis.

You might prove that the knock is in the third cylinder on the left by removing the piston and rod assembly and running the engine with this assembly left out. One possibility is that the piston goes far enough down through the cylinder bore so that when it goes back it catches on the edge of the cylinder, due to the center portion of the piston being turned down in the vicinity of the piston pin. Another possibility is that there is a slight ridge in the cylinder and this should be checked up by very carefully measuring this cylinder with micrometers.

There is also the possibility of a ring knock, sometimes encountered in engines recently reground. This seems to be due to the pressure getting at the top piston ring and forcing the ends of the ring sharply together. It is overcome by notching the top of the top ring so as to allow a little of the pressure to get behind the ring and hold it out. Believe that if it is definitely found out that the knock is in a certain cylinder that you will be able to run down the trouble, possibly by interchanging parts with that cylinder and some other cylinder.

WHITE TRUCK DATA

Q.—Last time you wrote me you gave me suggestions in regard to trouble I was having with bearings burning out on a 3½ ton White truck. I checked up the oil lines and found them perfect. I took up on the main bearings and moved the governor a little to see if it would help any, but the bearings still burn out.—Manual Texeira, Paia Maui, Hawaii.

This trouble can be corrected in the upper half of the main bearing. The part of the bearing which fits into the crankcase is filed so as to give it a flat spot. However, this flat spot is not big enough. It should be filed until it is % inch wide. The oil duct from the crankcase feeds oil to this flat spot and the space between the flat spot and the rounded arch of the crankcase in which the bearing fits gives sufficient space for an accumulation of oil.

Clearing Up Electrical Troubles

The Starter Is Lazy with Engine Cold

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Q.—I have been having trouble with a Durant four starter. This starter has been taken apart and tested with 110-volt A. C. test light for shorts and all circuits seem to be all right. The rear drive end bushing was loose and has been replaced with an annular ball bearing. The starter switch has been taken apart and checked up. This car has a new 11 plate battery which holds even voltage on all cells at 100 ampere discharge. All connections are tight and do not heat, therefore they show no resistance. The commutator and brushes seem all right. This starter will crank the engine when the engine is warm, but will not when it is cold.—Lower's Garage, Dwight, III.

While you checked the circuits by feeling of the connections to see if they were hot you could also check by using a voltmeter. While the starter is cranking the engine or trying to do so, you can take voltage from the battery terminal to the frame of the car to get the battery voltage and then from the starter terminal to the frame of the car to get the starter voltage. There should not be more than ½ volt difference when the starter is cranking the engine, as it does when hot.

May Be Trouble in Other Bushing

One possibility is that there is trouble in the other bushing which you did not If you have the starter off again and can run some current through the field only, you can tell whether the armature binds or strikes on the pole nieces. When there is no current through the starter, the armature can be turned easily by hand and when current is sent through the field winding it will turn a little bit harder. However, if the armature strikes the pole pieces it will turn very hard. To run this current through you might need to put some resistance in series with the battery, using for example, the rheostat of a high rate discharge test outfit, if you have one of these.

Another possibility is that the armature conductors are not securely soldered in the commutator bars. It is sometimes hard to tell whether they are properly soldered or not and in such cases the easiest thing to do is to solder them over again. This requires either a very large soldering iron well heated or else a carbon stick type of soldering iron which operates by means of short circuit current from a storage battery. Another test you might make is to put your ammeter in series with the starter cable on the car and see how much current the starting motor consumes. If it takes 300 or 400 amperes while barely turning the engine over, it would indicate a short circuit in the armature or other Edited by A. H. Packer

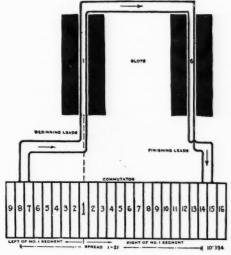
parts of the starter. We are inclined to believe, however, that the armature is dragging on the pole pieces or that the conductors are poorly soldered in the commutator.

Raises Battery Voltage to Get More Current

Q.—We have a service truck equipped with a number of spotlights. In order to take care of the extra current we built a special 16 volt battery to use instead of a 12 volt battery. Would a steady charging rate of 8 amperes be too high or too low to keep this battery up.—Bert M. Hennis, Strasburg, Ohio.

You made a mistake in changing the voltage, for this should operate to burn out the lights and will not give any more total energy. The storage battery acts as a reservoir and stores current from the generator temporarily, so that all of the current you use must eventually come from the generator. Changing the battery voltage will also necessitate going to special lamp bulbs.

If you have occasion to use the lamps for long periods of time when the generator is not running, then the thing you should have done would be to use a 12 volt battery in which larger cells with more plates per cell were used. There is no way of determining the amount of current you need from the generator except to try it out, for it all depends on how long you run the engine as compared to the time you use the lights with the engine standing. The thing to do is to watch the battery and check it frequently with a hydrometer and see whether or not the storage battery charge is increasing or decreasing.



From Universal armature winding manual

Armature circuit with one dead coil

The Ammeter Shorts the Generator

Q.—Why will a Dodge Bros. generator show no charge when an ammeter is connected between the positive generator terminal and the frame of the car with the cable removed from the generator. I know the generator is charging O. K. when normally connected.—Bert M. Hennis, Euckeye Garage, Strasburg, Ohio.

An ammeter has a very low resistance

An ammeter has a very low resistance and acts as a short circuit. This means that it acts as a ground connection on the live generator terminal. Accordingly when the machine starts up it will generate a slight amount of current due to the residual magnetism and if the machine is O. K. there must be some current going through the ammeter. This connection however, holds down the voltage of the machine to such an extent that the field winding does not get any appreciable current.

We would anticipate however, that you would get enough short circuit current to show on the ammeter. We have known of tests of this kind showing anywhere from five to ten amperes short circuit current. If the machine really is O. K. you might make the test in a little different manner. Run it with the wire off at fairly low engine speed and while running in this fashion connect the ammeter. The needle should suddenly jump up and show a reading and then if a short circuit connection really does kill the machine, the ammeter needle should then drop back to zero or nearly to zero.

VOLTMETER FOR SMALL SHOP

Q.—What make of voltmeter would be recommended for small shop?—Tennessee Repairman.

The make is immaterial. You can use a single voltmeter which reads about 3 volts so as to take readings of one cell at a time or you can have a combination instrument which enables you to take readings on one or more cells. Additional information will be given by letter.

WESTINGHOUSE ARMATURE DIAGRAM

Q.—I would like to obtain an armature diagram of the Westinghouse generator used on a 1918 Lexington car equipped with the Continental 7-W engine. This generator has the cutout mounted on the end bracket of the generator. The armature has 21 slots and the commutator has 41 bars.—Clyde E. Foster, 1029 Fulton Avenue, San Antonio, Texas.

The diagram is published in accordance with your request and a copy is being sent you by letter. There are five turns of No. 17 single cotton enamel covered copper wire in each coil, two coils per slot, wound together using wires of different color. This winding will give one dead coil the ends of which are taped up and buried.

NEW ITEMS OF SHOP EQUIPMEN'

Puller

E VERY make of car has hubs threaded sixteen threads to the inch, except only Ford and Chevrolet 490. The Stevens Universal Wheel Puller, made by Stevens and Co., 375 Broadway, N. Y., with adjustable jaws threaded sixteen threads to the inch, fits the threads of all these cars, from the smallest hub to the largest.

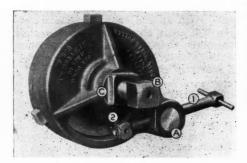
The Stevens puller operates on the principle of a lathe chuck. Therefore, its three steel jaws can be quickly adjusted to get a powerful grip even on damaged hub threads.

There is no danger of injuring the threads because the driving bolt B floats in the puller housing. Nor is there any risk of "dishing" the wheel, because this puller works directly on the hub and not on the spokes.

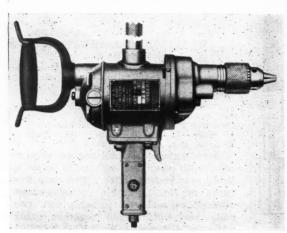
As a hub rethreader, this tool gives excellent results because it is adjustable. It corrects battered or crossed threads in the hubs of all makes of cars. The Stevens Universal Wheel Puller weighs 17 lbs. and is priced at \$20.

New U. S. Electric Drills

THE United States Electrical Tool Co., Cincinnati, Ohio, has added to its line a new 1/2 in. special electric drill, a 1/2 in. heavy duty drill and a % in. drill. The first mentioned lists at \$55 and has a full load speed of 450 r. p. m. It is equipped with three S. K. F. bearings, trigger



Stevens adjustable wheel puller and hub rethreader



U. S. 1/2-in. special electric drill which sells for \$55

Stevens Introduces a Universal Wheel switch and is designed for all-purpose New Transmission Stand for Ford Car work.

> The 1/2 in. heavy duty drill lists at \$67.50 and has the same general specifications as the 1/2 in. special, but is of more rugged construction to insure long life and efficient performance. The bearing layout on the 7/8 in. drill is the same as the others, but this model has a full load speed of 280 r. p. m. It is designed for continuous production, maintenance work and general utility. It lists at \$87.50

The Hisey-Wolf Angle Plate Grinder

THE Hisey-Wolf Machine Co., Cincinnati, Ohio, recently has announced its new Hisey double slide angle plate grinder. From the illustration it will be noted that there is a horizontal movement as well as a vertical movement. The slide travel vertically is 51/2 in. and horizontally 4% in. Both sides operate independently, which feature permits quick and accurate adjustment to the work. Each machine is supplied with a wheel guard, electric cable fitted with attaching plug, operating switch and grinding wheel. The price for alternating current is \$150 and for direct current

R-B Winch

THE R-B winch made by Braden Steel & Winch Co., Tulsa, Okla., has only two moving parts consisting of a sliding clutch and winch drum. The operation being independent of the wheel, it is not necessary to jack the wheel up. When installed upon a Graham Bros., 11/2-ton truck with standard gear it has a straight line pull of 4,500 lbs. in low speed. The line speed is controlled by the revolutions per minute of the engine. It is sold through Graham Bros. dealers.



for Ford cars and trucks which is provided with three attachments

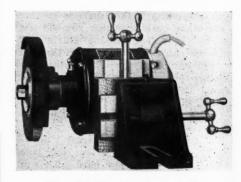
and Truck

A NEW timer and labor saving device has just been added to the "Speed-Up" Tool line of Stevens and Company, 375 Broadway, New York City, in the form of a Transmission Stand for the Ford car and truck. The column of the stand is built of malleable gray iron, affording a strong support for the work in hand.

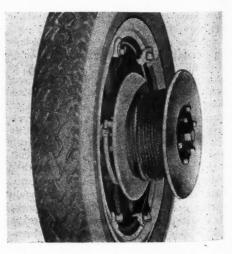
Two attachments are provided with the stand to hold the flywheel and transmission, both assembled and disassembled, during all operations. With all attachments removed, the drums of the flywheel-transmission assembly may be slipped into the recessed head of the stand where they are securely held for quick replacement of starting ring gear or adjustment of magnets.

A third attachment is used for operations on either side of the differential without removing the axle. This attachment, which is reversible, has one set of lugs which catch the teeth of the ring gear, while those on the other side mesh between the bolts, holding the differential in reverse position.

The complete floor model of the stand weighs 97 lbs. and is priced at \$30, while a bench model without the base has a weight of 31 lbs. and is sold at \$18. The third attachment for the differential costs, \$4, extra with either model and weighs 5 lbs.



Hisey-Wolf angle plate grinder



View showing use of R-B winch

Good Sales Stuff In These New Items

Westinghouse Air Springs

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m HE}$ new Highway model air spring Co., New Haven, Conn., is designed particularly for use on front end only. This model has a 3 in. bore and a 41/2 in. stroke, with increased volume of the air chamber and is provided with a special plate for bumper mounting. The cylinder bottom casting is bolted through to the spring pad, which in turn is riveted to the car frame. No alterations to the car frame or springs being necessary it is stated. Price installed \$125, plus tax.

Cooper Gasoline Gage

DASH gasoline gage for the improved A Ford with gas tank under the cowl is being produced by the Cooper Manufacturing Company, Marshalltown, Iowa, The product is being sold through the Fulton Company, Milwaukee, Wis. The makers declare this gage is positive and accurate, requiring no periodical adjustment and being without intricate mechanism to get out of order. The set contains a special float mechanism with a special adapter cap which fits into the standard Ford tank without alteration. This float is guaranteed by the company not to gas-log. The rectangular, glass covered dial is nickeled to match the ammeter and only requires two holes in the dash to install. Price \$3.

"HB High Rate Battery Tester"

I N the new HB High Rate Discharge Battery Tester, made by Hobart Brothers Company, Troy, Ohio, is a tester designed to test all cells of a battery without removal from the car. The carbon pile rheostat, with ammeter calibrated 300-0-300 and the three voltmeters calibrated 3-0-3, make it possible to test the three cells simultaneously under discharge conditions such as exist when the car is actually in use. A supplementary jack is provided which eliminates the rheostat from the circuit for measuring the amount of current used by the starting motor. The case is of cast aluminum with carrying handle and bakelite instrument board. It is so designed to make the instruments easily readable and at the same time protect the carbon pile from damaging blows. This tester weighs 12 pounds and is furnished complete for \$48 net cash, f. o. b., Troy, Ohio.

New Klaxon 15

S IMPLICITY of design features a new Klaxon horn just announced by the Klaxon division of the Remy Electric company. This latest model completes the Klaxon line, which is composed of three types of motor driven signals, three of the high frequency kind and two hand operated horns. The new Klaxon is a vibrator, or high frequency type, with the popular deep-pitched tone. The makers declare it contains all the features of high grade horns, is sturdy and easy to adjust and that refinements of design and manufacture have permitted an unusually low selling price. The new horn, known as Klaxon 15, will retail at \$6.75.

Schaefer Anti-Glare Shield

AMBER glass is used in the anti-glare shield manufactured by Carl Schaefer, Binghamton, N. Y., and distributed by C. L. Kingsbury, 28 Bennett Ave., Binghamton, N. Y. The device is attached to the top of the windshield or to the top of the car and the hinged bracket permits it to be swung against the roof of the car when there is no occasion for its use. Made in two sizes. Price, \$3.

Gas-Co-Lators for All Cars and Trucks

ALEMITE Gas-Co-Lators, products of the Bassick Manufacturing Company, 2650 North Crawford Avenue, Chicago, are available for any make of passenger car or truck, including Ford. This device functions as a gasoline filter and comes in two distinct models for cars equipped with vacuum tanks. One model is for installation on top of the vacuum tank, filtering the gasoline upward as the fuel comes from the supply tank. It contains a chamois skin filter suspended within a glass bowl in which receptacle water, dirt, and other foreign matter is collected.

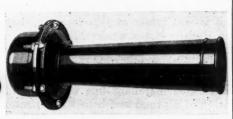
The other model for under the vacuum tank or on the fuel line of cars having other fuel systems contains a fine mesh, brass screen for filtering purposes instead of chamois. Model 4403 is the one designed for Fords and it sells for \$3.50. Other Gas-Co-Lators sell for \$5 each. Prices in Canada and west of the Rockies are slightly higher.

Hyde Springs for Fords

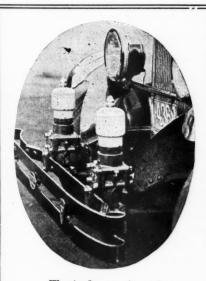
HYDE Springs for Ford Cars supplant the regular springs on the Ford car and extend from the front axle to the rear axle, being fastened to the chassis at the rear engine support. The Hyde Engineering Co., 610 Newbury Street, Boston, Mass., the manufacturer agrees to replace any broken or defective part. free of charge, within one year from date



Alemite Gas-Co-Lators



New Klaxon No. 15



Westinghouse air spring



Cooper gasoline Gage



HB high rate battery tester

Age

Preventive Service Plan Is Effective

(Continued from page 11)

may be found by number. The job card bears the name of the customer; make of his car; its price and the amount of work performed on it; the special order number and, in columns headed by the number 1 to 10, connoting the various inspections for each 500-mile run, the cost of each repair job done following that inspection. Below, at the left, is a space reserved for notations, or remarks on each job following an inspection, starting with the number corresponding to that of the inspection number as indicated in the column-space above.

The Repair Preventive Plan is advertised throughout the building, including the salesroom and service department office, by means of large easel placards.

Car salesmen and service salesmen are paid 10 per cent commission on each plan sold and the employe, in selling it, never fails to bring out the advantage of the plan in averting heavy repair bills, lowering charges and prolonging the life and comfort-giving qualities of the

An interesting feature of the service department office, separated from the service executives office is is a large "service blackboard" for the convenience of the service manager, Joseph J. Dobbs, who uses it as a quick check-up on work in hand, as he glances at it; and customers, when they call to learn how soon they may have their cars, consult it to see just how far the work has progressed.

This blackboard is divided into column spaces, headed "Name," "Make," "Time Promised," "License Number," "Shop," "Waiting for Parts," "Paint Shop," "Test," and "O. K." As the cars come in, chalk entries are made, as indicated, on this blackboard, as far as the column headed "Shop."

This column and the four others following it in order,



Free inspection plate that is installed on the car owner's instrument board, entitling him to ten 500-mile inspections, and indicating by mileage on the inserted slip when the next inspection is due.

have rows of peg-holes down their length, one opposite each space for the name and other data, respectively, about each car, as already given. When the boy detailed to this service, has brought a customer's car into the shop, he plugs with a wooden peg having a cork head, the corresponding hole, which indicates where that particular car is located, as shown by the column heading.

When the hole in the "O. K." column opposite the name of a car has been plugged with a peg, it indicates that the customer's car is "O. K." or ready for him to take

The executive and department heads of the company are: John J. Rascob, chairman of the board of directors; John F. Porter, president; H. N. Partington, general salesmanager, and Joseph J. Dobbs, service manager.

Makes a Profit from Every Department

(Continued from page 13)

in putting a small shop that had been a failure on a profitable basis. From February until June the business occupied the "alley" quarters, Mr. Sims taking over the entire building at the middle of the year. At the end of the year the books showed a profit of \$9,000 and the proprietor felt that he was crowded. He began looking around for more commodious quarters and he began to envision the possibilities of a general automotive establishment with the determination of making each department show a profit. "If a shop can be made so profitable," he told himself, "other departments can be made profitable—and the sum total of these department profits should be mighty snug."

So with this in the back of his head he moved in September, 1920, into a larger building at 322-324 N. Hickory Street giving him a floor area 45 by 160. Later he rented property to the south which doubled his space and it was while at this location that he contracted for the Hudson-Essex dealership.

Again wanting new quarters and fired with the ambition to own a building that would not only answer his purposes from a practical standpoint as an all-around automotive merchant but which would win the commendation of a proud and boosting community, Mr. Sims built the handsome structure which now houses the Auto Service Garage at 204-210 S. Neil Street. This plant as it stands with equipment and fixtures is worth upward of

\$130,000. It would be a credit to the "row" of any city. The building fronts 90 feet on S. Neil Street and has a depth of 160 feet. An ornate show room spreads the full width of the front and has comfortable capacity for displaying 15 cars, with a highly efficient lighting system. Centering the show room to the rear is the accessories and parts department which, as in the case of the shop, caters to the general motoring public. The parts are stored behind the accessory counters in modern steel cases and a master book on parts stock is kept. The accessory cases, in which the accessories are displayed rather than merely put have a total lineal measurement of 70 feet. One employe gives his whole attention to this department.

The shop, including storage, measures 90 by 110 feet and it is up-to-the-minute in every respect. Mr. Sims believes strongly in being amply equipped and in having only good equipment. He spent \$13,000 on equipping his machine shop alone.

The Sims personnel numbers 25. To demonstrate his interest in his employes he has a plan in action to make home-owning easier for the married men. One house already has been constructed and occupied and two more soon will be under course of construction. The employe specifies his own plans, Mr. Sims assumes the financial responsibility in the beginning and makes it possible for the employe to take up the building and loan on easy payments and without down payment.

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EDITORIAL

"Every Dark Cloud-"

ARAGES and shops in the area recently covered with heavy snows are beginning to "collect" for the temporary stoppage of business.

What looked like a bad season at first has turned out to be a period of profitable effort in many such establishments. During the blizzard period a tradesman located in a section receiving a most generous helping of snow found activities in his shop almost at a standstill—but now, like many others in his line, he has more work than can be conveniently handled.

It was produced by the same storm conditions that first marked so decided a lull. This particular tradesman figures that repair work following the snows will make April an exceptionally fine month notwithstanding the month's very poor start. Many others in this field likely will have similar experiences.

The storms threw a veil of indigo over the trade at first. It caused many long faces. At the same time it was a business maker for the shops and likely did no serious damage to any other branch of the business for this year. It created a good demand here and there for certain accessories while the owner of the old crippled car, dragged in for shop attention, was a good subject for the new car seller's merchandising notice. If you haven't done it yet look over such cases and slip their names in the prospect file.

Profits will not necessarily fly through open windows but they often make a quick get-away through dirty ones.

Sell the Salesman on Himself

A COMPETENT sales director is one who has the faculty of arousing within the salesman a conciousness of his personal ability.

That—from a man who is well known as a sales executive who specializes in a study of selling methods and who, consequently, is highly competent, himself, to speak on the subject

He offers a thought which every automobile dealer and sales manager, not having done it already, would do well to ponder seriously and harness for actual application in business. Some dealers and sales managers already have an appreciation of this managerial doctrine. Yet, many of them have it yet, to "get."

It is applied in highly successful establishments, successful largely for this one thing, where you will not find the old type of hard-boiled sales manager who thought it his duty to ride roughshod over his salesmen and make a specialty of belittling their native capacities for accomplishment.

Instead of that the successful sales director not only sells the salesman on himself but he does something most vital to merchandising—he sells them on themselves. Full confidence in one's personal ability "to do" is exactly what motivates *effort* and intelligent effort is what the sales director should seek to develop. On the other hand,

one good way to limit a salesman's effort is to destroy his confidence in himself.

Let the salesman know about his real qualifications and see that he takes a pride in this possession. That pride will sell cars.

That pot of gold at the end of the rainbow is not a bit bigger than the one near home. Intensify the selling effort in the area immediately around you.

Time to Make Money

OW is the time to make money in the automotive business. The dealer who cannot make money now probably never will be able to and should lose no time in getting into some other occupation.

The general business condition of the country this year is good. Thus far sales of automobiles have far exceeded the sales for the first three months of last year. A survey made by Motor Age, the details of which are given on page 9, indicates that while increasing their sales of new cars 39 per cent the dealers of the country have increased their stocks of used cars only 2.4 per cent. In other words, they have been selling used cars practically as fast as they have been getting them. This is as it should be, for nothing depreciates quite so rapidly as a used car in a dealer's stock.

So this is the dealer's harvest season. The good dealer will make money all the time, but even the best of them will have good times and better times. These are the better times for those who know their business.

Speaking of books—the dealer who does not know where he stands today does not know where he will lie tomorrow. And it might be in the cemetery.

In Two Weeks

WO weeks from now Motor Age will come to you with its second annual Sales and Service Reference Number. In this issue the editors have collected a vast amount of reference material that will be useful in every automotive establishment from the largest to the smallest. The issue will be one of the biggest and best Motor Age has ever issued and the editors believe it will be highly appreciated by a constantly increasing list of subscribers.

Accessories mean access to more profits.

News of the Industry

THE automotive industry continues to be one of the most dynamic that ever existed. It is constantly undergoing changes, but the best of it is that these changes mean progress. Having developed in 25 years to staggering proportions, it has not stopped but keeps right on growing and developing. Every week there is news of tremendous importance to the trade in the automotive industry and the good dealers are the ones who keep up with what is going on in their industry.

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PRODUCTION STABLE AT HIGH LEVEL

Sales Continue Upward Despite Stormy Spring

Parts Inventories, Built Up During Winter, Being Slightly Decreased

NEW YORK, April 21.—Expanding sales and fairly stable production at high levels continue to characterize the automotive situation. Whatever there may be of uncertainty about the business situation and of fear of what the stock market portends apparently has not yet affected the sales of automobiles, trucks and buses. The manufacturers, therefore, are following production schedules laid out in many cases before the stock market started its downward course.

A few men have been laid off at the automobile plants, but this mainly represents a decline in production of parts, with the rate of assembly unchanged. Inventories built up during the winter are thereby being reduced. In two or three instances, production is actually being stepped up to new record heights.

The satisfaction generally felt with the state of the industry is enhanced by the consideration that the early spring weather has been by no means ideal for the sale of cars, particularly in the northern states. Even farther south, the weather has not been as warm as it usually is in April.

The most rapid expansion just now is taking place in bus production and sales. New routes are being opened almost daily, and participation of railroads and electric railway companies in motor coach use is proceeding at a rate no one could have dared hope for a year ago. Truck business, while not developing in so spectacular a fashion, is nevertheless far ahead of the levels of last year.

Wills Reduces Prices

DETROIT, April 19.—Prices on its six cylinder line have been reduced by Wills Ste. Claire, Inc., effective immediately. The new prices on the traveler and roadster models is \$2,700; the five-passenger sedan \$3,150, and on the limousine \$3,350. With reference to the reduction, the company says it has been made possible through liquidation of the initial expense incidental to designing and production, combined with greatly improved manufacturing facilities.

Slack Is Used Car Manager

SEATTLE, Wash., April 19.—Announcement is made that Bert Slack has been appointed used car manager of the Westlake Chevrolet company of Seattle. He has been on the sales staff of the local Chevrolet company for the past three years, and recently was manager of a suburban branch of the firm.

New Seats on Hudson

DETROIT, April 19.—A new seating arrangement for the front passengers in the Hudson and Essex coaches and Hudson brougham is announced by the Hudson Motor Car Company. The front seats in all these cars are now the individual companion chair type and can be developed to provide greater comfort for the passengers. Both seating cushion and the backs of the front individual seats can be adjusted and the dealers at the time of selling the cars urge each purchaser to experiment with adjustments to find which driving positions are most comfortable.

U. S. Pays 7 Cents Mile for Cars

WASHINGTON, April 19.—Seven cents a mile compensation for use of private automobiles has been fixed by the Treasury Department as the actual cost of operation, plus compensation for the vehicle's use. A decision to this effect was made this week by Comptroller General McCarl, in passing on claims of agricultural department employes who use their own automobiles in behalf of governmental duties.

Canada Business Good

WASHINGTON, April 19.—The Canadian automotive industry is enjoying a fair degree of improvement, comparing the first quarter of this year over the corresponding 1925 period, the automotive division of the Department of Commerce has been informed. Both imports and exports are larger and more sales are reported.

Rollin Parts Will Be Made by New Concern

CLEVELAND, O., April 19.—For the purpose of servicing the 8,500 automobiles which the Rollin Motor Company sold prior to its liquidation by means of voluntary bankruptcy announced sometime ago, a new corporation has been formed here.

The new company, incorporated for \$10,000, is known as the Rollin Motor Service Company. It is using a portion of the plant of the Cleveland Tractor Company as its headquarters. Manufacture of replacement parts for Rollin cars has been sublet to the tractor company, it has been announced by C. B. Evans, general manager of the new service company.

There will be no increase in the price of replacement parts, Evans declared, announcing that 8,500 cars had been sold by the Rollin Motor Company prior to its going out of business.

"Approach" Is Big Thing In Selling, Asserts Expert

Finds 80 Per Cent of Sales Made or Lost First 5 Minutes of Interview

CHICAGO, April 17.—Eighty per cent of sales are made or lost in the first five minutes of interview with prospects, according to Frank S. McLaughlin, director of sales of the Salesmanship Foundation, Inc., who addressed a meeting of the Automotive Manufacturers' Association at the City Club, Chicago, last night.

Mr. McLaughlin, who spoke on the subject "Executive Control of Sales," asserted that the above statement was founded on the findings of research. His message cautioned sales executives to stress the importance of "approach" in the training of selling forces. "Approach," he said, "must be intelligent and planned, devoid of timidity and conveying an assertive argument of service and profit to the prospective buyer rather than consisting of 'information' that does not sell."

One chronic weakness noted in sales executives by Mr. McLaughlin is inability to sell themselves to the salesmen. Too much technicality, an inclination to shoot over the heads of others, is a chronic weakness he has found in executives and salesmen, alike. Mr. McLaughlin's organization makes special study of selling methods.

F. B. Caswell, vice-president and director of sales of the Champion Spark Plug Company, made an interesting explanation of the status and merits of the Capper-Kelly bill, now pending in congress, which would give competitive makers of trade-marked products legalized control of their own prices.

He offered a convincing argument to the effect that the present price maintenance measure would be of great benefit not only to the maker, but to the wholesaler, retailer and final consumer. The consumer would benefit, for one thing, through a new condition minimizing the cut-price sale of damaged or inferior products under false representations that such products are in good condition. The dealer would benefit through a reduction of the cut-price evil and the stabilization of his business. Mr. Caswell made an appeal for a rally to the support of this bill by the industry and trade.

Indiana Ring Changes Name

HAGERSTOWN, Ind., April 22.—The name of the Indiana Piston Ring Co. has been changed to The Perfect Circle Co. in order to more closely identify the company with the product. The change is in name only for there will be no change in policy or management of the concern.

E. G. Wilmer Is Elected President of Dodge Bros.

Frederick J. Haynes, Former President, Made Chairman of Board of Directors

DETROIT, April 19.—Edward G. Wilmer, former chairman of the board of Dodge Brothers, Inc., was elected president by the board of directors and the former president, Frederick J. Haynes, was made chairman of the board. Mr. Wilmer will assume active charge of Dodge Brothers affairs. He will take up residence in Detroit and resign as chairman of the board of Goodyear Tire & Rubber Co.

Ray, Robert and Joseph Graham have resigned as vice-presidents of Dodge Brothers, having held these positions for the last four months. Their resignations, which were accompanied by expressions of good will for the Dodge Brothers management, were coincident with the decision of the board to exercise its option and purchase the remaing 49 per cent of Graham Brothers stock, giving complete ownership of the truck company to Dodge Brothers, Inc.

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Graham Brothers last year produced 24,298 vehicles and this year has been bettering its former rate by a wide margin

A. T. Waterfall, H. H. Springfield and A. Z. Mitchell remain as Dodge Brothers vice-presidents as a result of their relection by the board. Fred Albertson, of Los Angeles and C. M. Bishop, of Brooklyn, were formally elected as dealer-directors.

Widely known for his achievements in industrial organization and management Mr. Wilmer has successively held executive positions in the mining, chemical, steel and rubber industries. Perhaps his most notable accomplishment was the reorganization and rehabilitation of the Goodyear company during the war. He was head of the buying section in charge of trench warfare materials. At various times he was vice-president of the Newport Mining Co. and of the Steel & Tube Co. of America.

The announcement that Mr. Wilmer would assume active direction of the Dodge interests was not unexpected in view of the great confidence known to be placed in him by Dillon, Read & Co., which purchased Dodge Brothers, Inc., a year ago. Clarence Dillon, head of Dillon, Read & Co., accompanied a large group who came from New York for the meeting. Mr. Dillon and Mr. Wilmer have been friends and associates since 1910.

In his new position, Mr. Haynes will be able to give the company the benefit of his long experience with automotive affairs and his characteristic grasp of the problems of the industry.

Mr. Haynes entered the transportation industry in 1895 as assistant to John F. Dodge when the latter was general man-

ager of the National Cycle & Automobile Co. of Hamilton, Ont. He became general manager when Mr. Dodge went to Detroit. Later he entered the Dodge Brothers organization and assumed the presidency of that concern in 1920 after the death of Horace E. Dodge.

The progress of the company during the years of Mr. Haynes incumbency made him a dominating factor in the industry. He is generally credited for the continuance of the policies of the Dodge Brothers and for the development of new policies which kept the company in the forefront, not only with regard to its manufacturing performances, but in the development of its distribution efficiency.

In latter years Mr. Haynes has manifested a desire to retire from the active direction of the company, but he remained at the request of the Dodge family and latterly at the insistence of the Dillon, Read company. In the chairmanship he will continue to give his active co-operation to the new executives without being charged with the responsibility of the presidency.

Woodward Is Elected President of Autocar Co.

PHILADELPHIA, April 19.—L. L. Woodward, recently named president of the Autocar Co., succeeding D. S. Ludlum, was formally elected to the presidency at the meeting of the new board of directors this week. Other officers named were J. S. Clarke, vice president; W. T. Savoye, vice president; J. C. Taney, treasurer, and R. T. Anthony, secretary and assistant treasurer. W. W. Norton is production manager and R. P. Page, Jr., formerly New England district manager, has been named sales manager.

The company will not undertake any extensive financing at this time. New money to the extent of \$250,000 has been made available through the sale of \$250,000 in preferred stock. Additional cash will be provided by banks if required, pending the formal refinancing which is to come later. For the present the efforts of the new officials will be devoted to placing manufacturing operation on a more efficient basis, and also toward developing better distribution.

Directors of the company were elected at the annual stockholders' meeting as follows: L. L. Woodward, J. S. Clarke, J. C. Taney, R. T. Anthony, W. W. Norton, H. Arthur Smith, Herbert Sinclair, Edwin A. Fitts, W. W. Battles. Mr. Smith is president of the Trenton Trust Co., Mr. Sinclair, president of the Star Porcelain Co., and Mr. Battles is a Philadelphia banker.

Sharp Promotes Clark

SEATTLE, Wash., April 19.—R. B. Clark has been named new sales manager for Sharp and Sharp, Inc., Seattle, distributors of Gabriel snubbers and purolators. He has been connected with the Gabriel organization for several years and has had experience in the business in many cities in the United States.

Dodge Brothers Policy Is Unchanged, Says Wilmer

New President Declares That Established Plans Will Be Vigorously Pursued

DETROIT, April 19.—"Dodge policies will not be changed, but plans already established will be pursued aggressively."

This, briefly, was the statement made by Edward G. Wilmer after a series of startling changes in administration had placed him as president in active charge of Dodge Brothers' affairs. His election to this post—he was formerly chairman of the board of directors—was coincident with the resignation of Ray, Robert and Joseph Graham as vice-presidents and the election of Frederick J. Haynes, former president, as chairman of the board of directors.

Mr. Wilmer was emphatic in his statements of policy.

"I want to correct any impression that may exist that there has been any dissatisfaction with the previous administration of Dodge Brothers," he said. "We remain on the most friendly terms. The policies hitherto existing will be followed more vigorously than ever before."

The board of directors of the company, at the meeting which resulted in Mr. Wilmer's election as president, voted to exercise an option on the remaining 49 per cent of Graham Brothers stock, giving complete ownership of the truck company to Dodge Brothers, Inc. Later it was announced that the Graham Brothers had made no plans for the future other than to take a prolonged rest.

Wilmer Stays With Goodyear

AKRON, O., April 19.—Although E. G. Wilmer will resign soon as chairman of the board of the Goodyear Tire & Rubber Co., he will continue active in the management of Goodyear as a director of the company, according to President P. W. Litchfield. A successor to Wilmer as chairman of the Goodyear board is not likely to be named, Litchfield said.

Freed Heads Radio Shows

NEW YORK, April 19 .- J. D. R. Freed, president of the Freed-Eisemann Radio Corp., has been elected president of the Radio Exhibition Corp., to succeed E. B. Mallory of the Westinghouse Electric & Mfg. Co., who resigned The organization consists of 29 manufacturers who own stock in the corporation. On April 22, at a dinner at Hotel Roosevelt, announcement will be made of the organization's plans. The chief object is to place radio shows throughout the country on an economical basis. Although there will be two radio shows in New York the week of September 10, the corporation hopes that by 1927 all interests will co-operate in one show annually.

Ford Airways Celebrate First Year of Operation

More Than 1,000 Trips Made During Period Without Injury to Pilot or Plane

DETROIT, April 19.—The last week marked the first anniversay of the opening of the Ford Airways. the largest privately owned commercial aviation project in the country, which during the year just ended has established a remarkable record demonstrating the practicability and efficiency of airplane transportation. In observance of the event the daily flight to Chicago was made by the Maiden Dearborn 1 with Eddie Hamilton in the cockpit, the same plane and the same pilot who inaugurated the service a year ago.

Together with the report which covers the year's operation of the air service, two important developments, each a safety factor, were announced by the Ford Motor Company. The first is the experimentation with the radio beacon by means of which the planes are made virtually independent of visibility conditions. The second is the decision to standardize upon multi-motored monoplanes in the company's air service.

Ford flying began on April 13, 1925, when the all-metal airplane, Maiden Dearborn I, built by the Stout Metal Airplane Company, now a division of the Ford organization, left the Airport at Dearborn for Chicago with 1,000 pounds of freight, cheered by Henry and Edsel Ford and a large crowd and welcomed by prominent Chicagoans at Maywood field upon its arrival there less than two and a half hours later. Later, a second line was established between Detroit and Cleveland and on February 15, this year, Ford planes began carrying U.S. mail, connecting Detroit with the trans-continental air mail lines.

More than 1000 trips have been made by the Ford planes during the year, covering a distance equal to more than eight times around the world and at a rate of about 100 miles an hour. Incidentally, the Maiden Dearborn I, which made the Chicago flight has a record of 302 trips during the year, carrying 298,008 pounds of freight traveling 68,632 miles.

There have been no injuries to pilots or planes during this time.

Williams in Seattle

SEATTLE, Wash., April 19.—G. M. Williams, president of the Marmon Motor Car company who stopped in Seattle enroute to Vancouver, B. C., is highly pleased with business conditions throughout the country. "The general condition of business over the nation is highly satisfactory and apparently will continue so," he declared. "Marmon does not expect any pronounced booms or mushroom growths, but instead a healthy business improvement throughout the year." Mr. Williams pointed out that

agricultural conditions are favorable throughout the country, with plenty of snow for the wheat men in the middlewest, and more rain than usual in the southwest. He also declared that the slumps which were noted in the stock market recently were not a business barometer and did not indicate business slump.

Electrical Dealers Meet

CLEVELAND, O., April 19.—Twenty-five electrical distributing firms had representatives here recently for a three-day convention sponsored by the Leece-Neville Company, of Cleveland. It was the company's first assemblage for its distributors and so pleased were company officials with the results accomplished that in the future the affair will be an annual one. The general discussion led by Arthur Skinner, Leece-Neville Company sales manager, had to do, for the most part, with equipment for motor buses, motor rail cars, trucks, motor boats and airplanes.

Eaton Re-elects Officers

CLEVELAND, O., April 19.-Declaration of a dividend and re-election of officers marked the annual meeting here of directors of the Eaton Axle & Spring Company. Those re-elected were: J. O. Eaton, chairman of the board of directors; C. I. Oaks, president and general manager; F. C. Robie, vice-president and in charge of manufacturing; R. E. Enos, vice-president and in charge of sales; F A. Buchba, secretary and treasurer; E. C Steussy, assistant secretary and treasurer. The dividend declared, payable May 1 this year, amounts to 53 The largest monthly cents per share. increase in business was reported in March, and plans have been made to continue working throughout the day and night during April.

Budd Enters Germany

WASHINGTON, April 19.—Formation of an American owned automobile body manufacturing plant in Germany is reported to the U. S. Department of Commerce by the commercial attache at Berlin. According to the report the new concern is being financed by the Edward G. Budd Manufacturing Company of Detroit and Philadelphia, being a limited liability corporation with a paid in capital of 7,500,000 marks. The new concern will be known as the Ami-Budd-Pressworks.

March Best Month

PORTLAND, Ore., April 19.—W. E. Delfel, sales manager of the Howard Automobile Company, Buick distributors, has announced that March was the best month in the history of this company. Figures just completed show that in that period the total sales were \$100,000.

Boyce Moves Plant

NEW YORK, April 19.—Boyce & Veeder Co., Inc., maker of Boyce-ite, has moved its office, headquarters and plant from Long Island City to Farmingdale, L. I.

Indiana Chevrolet Men Confer With R. H. Grant

More Than 400 Dealers, Bankers and Factory Representatives Hold Convention

INDIANAPOLIS, April 17.—Four hundred Chevrolet dealers, sales managers and bankers from all Indiana were here this week for the first state-wide Indiana Chevrolet convention, and took part with R. H. Grant, vice-president of Chevrolet Motor Company and his staff of 12 other Chevrolet officials and executives, in a series of meetings and business functions. Charles R. Lee, Indianapolis zone manager, and Floyd Snyder, local zone assistant sales manager, and their staffs acted as hosts and laid the plans that kept every minute of the day packed with business.

It is said to have been one of the biggest motor car sales meetings that the state of Indiana ever witnessed, with Vice-president Grant from the Detroit Chevrolet headquarters came R. K. White, promotion manager; Sidney Corbett, manager fleet sales and truck division; C. E. Dawson, assistant general sales manager; H. J. Klinger, assistant general sales manager; William A. Blees, manager of certificate sales; J. E. Grimm, Jr., advertising manager; W. G. Lewellen, assistant sales promotion manager; T. G. Johnstone, regional sales promotion manager; P. A. Watson, regional parts and service manager; C. L. Sud-mann and E. A. Schippel, both of the sales promotion department of Detroit. M. D. Douglass, regional manager who has charge of Chevrolet sales throughout the vast southeast territory, also came for the conferences and meetings.

The factory delegation and the local zone officials and their staffs met in the zone headquarters during the morning. A general noon round-up for luncheon followed, and then the big crowd went to the Murat Temple for the heavy part of the business sessions which lasted several hours. "Modern Methods of Merchandising," "The Most Successful Methods of Used Car Handling," "How Quality at Low Cost Is Obtained Through Volume Production," and several other important topics were handled at the meeting. In many cases motion pictures and other illustrative methods were employed to make the point more evident.

At the big dinner, at which many local Chevrolet dealers and their staffs were present, C. E. Dawson, assistant sales manager, acted as toastmaster, while the main address was made by Vice-president Grant. Charles E. Lee, M. D. Douglas and J. P. Little also spoke.

Lycoming Picks Dense

WILLIAMSPORT, Pa., April 19.—Arthur F. Dense has been appointed factory superintendent of the Lycoming Manufacturing Co. to succeed John R. Walton, resigned.

Peerless Adds Two New Directors to Its Board

One Dealer Is Selected and General Sales Manager Is Elevated to Body

CLEVELAND, O., April 19.—Realizing that dealer representation on its board of directors will make it better able both to serve its owners and public, the Peerless Motor Car Corporation at its an-

nual meeting increased its directorate from 11 to 13 members to allow Charles H. Larson, its largest distributor, a place on the board. Charles A. Tucker, general sales manager of the company, was also elected to the board.



Mr. Tucker has been with the Peerless company for the

less company for the C. H. Larson last year. Before that he served as sales manager for the Olds Motor Works during the administration of Edward Ver Linden, now president of the Peerless company. Under his management sales have greatly increased and the Peer-

less dealer organization has grown to an extent never before enjoyed by the company.

Mr. Larson as con-

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C. A. Tucker

Cutting, Larson Company of New York City is known as one of the leading automobile merchandisers of the country. He has been in the automo-

bile business since its pioneer days and before that sold bicycles.

General John T. Cutting was attracted to him in 1905 and took him in partnership in his automobile distributing company. About five years later General Cutting died and Mr. Larson assumed management of the company. His success is evident in the large organization which he has built in New York with its branches extended through several states.

Mapel Heads Subsidiary

LOS ANGELES, April 19.—John W. Mapel, former assistant to the president and treasurer of the Goodyear Tire and Rubber Company of California, was recently elevated to the presidency of this firm by the board of directors. E. G. Wilmer, chairman of the board of directors of the Akron company and former president of the California company, was elected chairman. A. F. Osterleh was re-elected as vice president and general

manager as was Walter I. Lyon, secretary of the company. J. S. Willaman was elected treasurer.

Flint Branch Dines Force

DES MOINES, Ia., April 19.—The Iowa Flint company, 1122 Locust street, has changed management and H. A. Walter, for several years manager of the Chicago and St. Louis branches of the Flint, is manager. He gave a dinner to the local agency force last week and W. J. Herron, supervisor of branches in Flint, Mich., C. M. McWilliams of Kansas City, James A. Knox of Chicago and E. J. Montague, Kansas City, nationally known salesmen in the Flint organization, were speakers.

Seaman to Expand

MILWAUKEE, April 19.-Despite the fact that an addition doubling the size of the works of the Seaman Body Corp., at Lake Boulevard and Richards Street, was completed only a short time ago, the pressure upon production of bodies for the Nash and Ajax is so heavy that plans have been accepted for another addition, five stories, 100x172 ft. Contracts are now being awarded and work will be pushed to early completion. The Seaman plant, originally one of the largest body works in the country, will soon rank as the largest under a single roof. The Nash-Ajax interests own a 50 per cent interest in the property. W. J. Iwer is general superintentdent.

Chevrolet Dealers Meet

ALTOONA, Pa., April 19 .- Sales managers of agencies for the Chevrolet Motor company in the Pittsburgh zone, comprising the west and central parts of Pennsylvania, to the number of 60, held a meeting in this city. W. H. Murray, the head of the local agency, was the convention host. Many of the sales managers were accompanied by their employes. A luncheon meeting was held in the Penn Alto hotel at which time policies and business prospect sfor spring were discussed. Talks were made by Felix Doran, Jr., C. M. Murphy, F. E. Nettleton and E. M. Evans of Pittsburgh; H. F. Horne, H. A. Donnelly and Mr. Murray of this city.

Hupp Offers New Six Coupe

DETROIT, Mich., April 19.-The first new body style added to the line since the introduction of the Hupmobile Six is a new 2-passenger coupe listing at \$1,385, it was announced today by the Hupp Motor Car Corp. The car was designed for either business or pleasure purposes. It has an unusually wide folding rumble seat and by having the seat cushions quickly detachable a large amount of luggage can be carried in that compartment. There is a golf compartment with access by a small side door. Three passengers can ride comfortably on the especially wide single seat. Upholstery is leather, but velour is optional. The Duco finish is green with black understriping. In addition to the usual line of equipment the new model carries a dash gasoline gage and Snubbers.

Willys Now Producing "6-70's" at Fast Pace

Output Schedules Revised to Average of 1200 Daily on All Models

TOLEDO, April 19.—Announcement has just been made by Willys-Overland, Inc., that production on the new Willys-Knight Six Seventy, which was first displayed this year, has now reached a quantity basis and that deliveries on back orders are being filled in rotation as fast as these cars can be shipped from the factory.

Approximately 25,000 of these cars have been ordered in the first three months of this year which is a number considerably ahead of the maximum manufacturing schedule for this period and far ahead of the early production figures. It is hoped to make sufficient inroads upon the back orders within the next 30 days to in a way alleviate the acute shortage which has existed from the first of the year.

Against a daily average of 700 cars for last year when the delivered output of Willys-Overland, Inc., was 212,000 cars, production of all models in the four lines built by this organization is now at the rate of 1000 a day and facilities are being rapidly made to bring this up to 1500 a day within the next two months.

Present indications are that a daily average for the year of not less than 1200 units in the four general lines, will be necessary to satisfy dealer demands which will be considerably in excess of the 50 per cent increase in manufacturing schedules which was set early in January.

The production of the Willys-Knight Six Seventy will constitute a large percentage of the total output despite the fact that demand for the Overland Six is already at a rate of approximately 50 per cent increase over the total business in this model for last year.

Takes Flint Distribution

FT. DODGE, Ia., April 19.—W. R. Strough and Roy Barnum have formed the Fort Dodge Flint company which will distribute Flints among dealers in 14 northwest Iowa counties and they are already appointing branch representatives in the territory. Robert E. Driscoll of Omaha will manage the agency. The main sales agency and garage will be at 21 North Eleventh street.

Hall Leaves M. & A. M. A.

NEW YORK, April 19.—The resignation of G. C. Hall, show manager of the Motor and Accessory Manufacturers Association is announced. Mr. Hall has been connected with the association for 15 years. He is joining the sales division of the Fred J. French Co., New York, creators of the French plan of building management and financing properties.

British Produce 176,197 Cars and Trucks in 1925

Motor Vehicles Now in Use Are Estimated at One for Every 30 Persons

NEW YORK, April 19—. Calculations by the "Motor Trader," based on British Ministry of Transport returns, indicate that 176,197 British passenger cars and trucks were produced last year, against 133,811 in 1924 and 89,682 in 1923.

Passenger car production rose from 67,334 in 1923 to 102,566 in 1924 and 131,-834 last year, while truck output increased from 22,348 to 31,245 and 44,363.

Motor vehicles in use in England are now estimated at more than 1,500,000 or one to every 30 inhabitants compared with one to every six in the United States. Average retail price of the 176,000 vehicles produced last year was \$1,500. High-powered de luxe models alone increased in price, other prices falling with growth in output.

The 10 and 12-horse power models represented 59 per cent of total production in 1924 and 68½ per cent last year. Home sales of British-made trucks last year were 40,199, or 40 per cent more than in 1924 and about 66 per cent of the total home sales against 55 per cent in 1924. Imports and assemblies decline from 23,837 to 20,119.

Fitness Leaves Chrysler

DETROIT, April 19.—R. J. Fitness, for the last three years in the engineering department of the Chrysler Corp., has joined the Belflex Corp. of New York, as a sales engineer, with headquarters in Detroit. Mr. Fitness has been connected with the industry since its early days.

NEW Automotive Literature

GARAGE RECORDS THAT TALK. A booklet describing the loose leaf accounting systems for various types of garages and automotive establishments made by the Irving-Pitt Manufacturing Co., Kansas City, Mo.

CATALOG of tire pumps for bicycles and automobiles, grease guns, inflators, and other items in the Bridgeport line, 1926 edition. Bridgeport Brass Co., Bridgeport, Conn.

HAND BOOK of the International Automotive Industry. This is a directory of nearly 1000 pages containing facts about motor vehicles manufactured in all countries. It is edited in English, German and French, but the greater part of the text is in German. Price in the United States, \$10. Published by Finanzverlag G.m.b.H., Berlin C2, Germany, Neue Friedrichstr. 47.

SALIENT FACTS ON SILENT GEARS. A booklet discussing the use of fabric gears for various types of power drive including automotive timing trains. Published and distributed free by Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.

BALL BEARINGS. A booklet listing all types of Torrington ball bearings and giving specifications, capacities, tolerances and full size scale drawings. The Torrington Company, Torrington, Conn.

New Stewart-Warner Branch

DAVENPORT, Ia., April 19.—A branch warehouse and service station of the Stewart-Warner Speedometer Co. has been opened at 222 East Third street with David Laplant local manager and Charles Laplant, superintendent of service. Speedometer, accessory and radio parts for the section midway between Chicago and St. Louis will be handled through this branch hereafter and guaranteed equipment within a radius of 150 miles under its jurisdiction.

General Motors March Sales Gain by 35,457

New Monthly Record Is Established When Total Volume Reaches 106.051

NEW YORK, April 19.—March retail sales by all General Motors divisions, including overseas, were 106,051 compared with 70,594 in March last year, a gain of 35,457 or about 50 per cent, and establishing a new monthly record for the corporation.

Alfred P. Sloan, Jr., president, says that the importance of this record may be appreciated when considered in connection with the fact that the March sales potential is less than April on account of the seasonal trend.

The previous record was April, 1923, with 105,778 retails sales. For the first quarter this year retail sales were 224,720 against 135,766 in the 1925 quarter, a gain of 66 per cent.

March sales to dealers were 113,341 against 75,527 a year ago, a 50 per cent gain, and first quarter sales to dealers were 280,906 against 155,315, a gain of 81 per cent. Chevrolet production in the 1925 quarter was reduced by the introduction of a new model in January.

March sales to dealers this year exceeded retail sales by only 7,290. Mr. Sloan described unsold car stocks in dealers' hands and branches at the end of March as in line with seasonal requirements with no excess. He expects one or two divisions will lose sales because of insufficient stocks and inability of move sufficient production to meet demand.

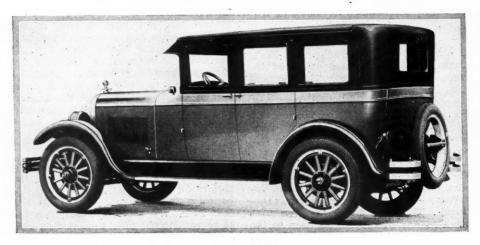
Builds New Factory

ROCKFORD, Ill., April 19.-The Mechanics Machine company, manufacturers of automobile transmissions, will soon occupy a new modern factory building at Eighteenth avenue and Ninth street, erected at a cost of \$175,000. The first floor of the new plant will be ready for occupancy within 40 days, and the completed building is expected to be six stories high. It will be 140x80 feet. The company is now occupying 300,000 square feet of space but according to Eric Ekstrom, secretary and general manager, is crowded for space, so that its main offices, engineering and designing departments will be located in the new unit. Increases in the working force will follow during the summer.

Ford Promotes Esslinger

NEW YORK, April 19.—Succeeding C. A. Esslinger, who becomes manager of the Cincinnati branch, C. J. Seyffer has been appointed assistant manager of the New York branch of the Ford Motor Co. He was formerly branch wholesale manager.

Cleveland Announces New Sedan



New Cleveland Series 31 De Luxe Sedan which has just been announced, listing at \$1250 F. O. B.

Hoover Saved Motorists 280 Millions, Says A.A.A.

Campaign Against High Price of Rubber Given Credit for Reduction

WASHINGTON, April 19.-American motorists will save \$280,000,000 on their tire bill alone during the year 1926 as a result of the campaign to loosen the grip of foreign monopoly on raw rubber, according to a survey of current rubber prices and prospective tire costs just made here by the American Automobile Association.

This estimate is based on the differential between present prices of around 50 cents a pound and the price of \$1.10 last November, when Secretary of Commerce Hoover launched the campaign to obtain relief for the users of rubber in the United States.

Four distinct gains cited by the A. A. A. statements as a result of Secretary Hoover's success in combatting the Stevenson Restriction Law are:

1. Even if raw rubber does not go below the present price, the car owners still stand to save at least \$280,000,000 that they would have paid this year if monopoly had not been vigorously opposed and the stranglehold on the American consumer broken.

It has done a great deal to make the country see the seriousness from the economic standpoint of the United States being wholly dependent on foreign-controlled sources for one of the basic raw materials of our great automotive industry.

3. Had tire prices remained at the peak the inevitable result would have been the under-tiring of automobiles and in consequence a material increase in accidents.

4. Not since the advent of the automobile has there been such interest in reclaiming rubber and the development of substitutes.

Waller Buys Factory

WATERLOO, Ia., April 19.-O. L. Waller, of the Waller Manufacturing company returned this week from Oklahoma City, and announced that he had purchased the Harris Manufacturing company and will move its plant to the Waller factory here. The Oklahoma City firm made the Harris rubber-snub shock absorbers and the Waterloo concern has exclusive manufacturing rights on the patent. Production will start in 30 days and a force of 30 additional men will be employed.

Hold Annual Banquet
WATERLOO, Ia., April 19.—Hugh Grogan, factory representative of the Cadillac Motor Car company, Detroit, was principal speaker last week at the annual banquet of the Morris Motor Car company held in Black's Tea room. A. M. Meyer, Cadillac representative in

Panama Cars Must Drink

WASHINGTON, April 19.-A unique form of automobile taxation is reported to the Automotive Division of the Department of Commerce by Vice Consul H. D. Myers at Panama. Under the provisions of a recent Panaman decree, all gasoline consumed in the country for fuel or power shall be mixed with alcohol of 40 degrees Cartier in such proportions that the mixture shall contain 95 per cent gasoline and 5 per cent alcohol. The object of the law is to create a greater market for the purpose of stimulating the sugar industry of the country.

Dubuque, was another speaker and C. A. Morris, head of the company, presided. There was informal program of music and readings and dancing concluded the

Bell Joins Columbia

OAKLAND, Cal., April 19.-W. H. Bell, for many years Pacific Coast manager of the Kelly-Springfield Tire Company, and a former member of the executive committee of the Rubber Association of America, has joined the organization of the Columbia Tire Corporation of Portland, Ore., according to an announcement made here by Robert A. Wurzburg, presi-

Open Show Room

ELGIN, Ill., April 19.—Carpenter & Langellier, Oakland, Pontiac and Rickenbacker agents in this city, will build a one-story show room at 222 Grove avenue this month. It will cost \$15,000 and occupy the 40-foot space between their garage, which has been serving as a sales room, and the street line. The building will be 35 feet deep and devoted to display of the models of cars represented by the firm.

Goodrich Promotes Smith

LOUISVILLE, April 19 .- J. B. Smith has been appointed manager of the Louisville factory branch of the B. F. Goodrich Rubber Company. Smith has been connected with Goodrich for the last 10 years in Akron, Pittsburgh, St. Louis and Louisville. The company is enlarging its activities in this territory through local stores and warehouses in strategic points in Kentucky, Indiana and southern Illinois.

Spalding Buys Partner

LOUISVILLE, April 19.-William Spalding, president and general manager of the Reo-Spalding-Kelly Company since 1922, has bought the interest of his partner, John S. Kelly and becomes sole owner of the firm which distributes Reo automobiles and trucks in Louisville and

Dodge-Graham Sales Set New Record for Ouarter

Total Volume Is 70,599 Units or Gain of 19,281 Over Same 1925 Period

DETROIT, April 19.—Retail sales of Dodge Brothers motor cars and Graham Brothers trucks by dealers in the United States in the period from January 2 to April 3, 1926, established another phenomenal record with a total of 70,599 units as compared with 51,318, a gain of 19,281, or 37 per cent over the same period in 1925, according to factory officials.

This high record was made in the face of bad weather conditions which prevailed throughout all sections of the United States during almost the entire period.

Shipments from the factory in the first three calendar months of 1926 likewise established a new high mark with a total of 86,351 units as compared with 59,378, a gain of 26,975 or 45 per cent over the same period in 1925.

Shipments of Dodge Brothers motor cars and Graham trucks to satisfy the increasing demand of foreign dealers during the month of March reached the highest point ever recorded in the history of Dodge Brothers, Inc., with a gain of 50 per cent over the corresponding month of 1925. This total was 4460 compared with 2972 in March, 1925.

A substantial increase has been made each week in retail sales of Dodge Brothers motor cars and Graham Brothers trucks thus far in 1926.

New Velie Distributor

NEW YORK, April 19.—Distribution of the Velie in the Metropolitan district, handled by the Garland Automobile Co. for 17 years, has been taken over by the W. A. G. Motors Corp., organized by W. A. George, formerly a Velie salesman with the Garland concern, and Moise Hirsch, president and financial backer of the new corporation. W. H. Garland said today that the Garland concern would continue to handle the Rickenbacker and McFarlan in this territory and the Velie in Binghamton.

Fehling Buys Custom Bodies

NEW YORK, April 19.—Albert Fehling, of Fehling Hnos., Buenos Aires, who has been Cadillac distributor in the Argentine for 23 years, and who is also distributor for Wills-Sainte Claire, and Federal Truck, has sailed for his home after spending two months visiting automobile factories in this country. Mr. Fehling's major mission to the United States was to look into the custom-built body field, and before sailing he had placed orders with two of the exclusive custom-body builders of the East for full collaspible cabriolet types, which are in constantly increasing demand in Argentina.

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Still Greater Expansion Of Graham Plant Seen

Executive Party Inspects Improvements Completed at Evansville

EVANSVILLE, Ind., April 19.—Intimation of still greater expansion soon in building facilities of the local Graham Brothers motor truck plant were made here with the visit of a party of Dodge Brothers and Graham Brothers executives and department heads in a special train from Detroit. The party made a comprehensive inspection of improvements just completed, costing about \$300,000.

Official inspection was preliminary to the launching of a new production schedule, 80 trucks a day, an increase of 25 per cent over highest previous daily output. The local plant is now building the Graham Brothers line, and the Dodge Brothers ¾ ton truck.

The improvements representing an outlay of about \$300,000, comprise three and a half new units of steel, concrete and brick of one story, each 90 feet by 240 feet, a large plant reservoir of 100,000 gallons capacity, and several minor improvements.

The visiting party included Joseph B. Graham, president of Graham Brothers, and vice president in charge of production, Dodge Brothers; Robert Graham, vice president and general sales manager, Dodge Brothers; John Lee, vice president, Dodge Brothers; Ralph Vail, vice president in charge of engineering, Dodge Brothers; and Harry New, director of distribution, Dodge Brothers and Graham Brothers plants.

Others in the party were E. R. Harrell, general factory manager, Graham Brothers; Harold Neely, director engineer, Graham Brothers; Pitt Barney, Cleveland; A. Gerke, M. Baird, and M. Avarill, engineers, Detroit plant, Dodge Brothers; Russell Valpey sales manager, Graham Brothers; and L. N. Cope, disrict representative, Louisville, Ky.

Brown Rejoins Industry

BOSTON, April 19.—Frank Brown, manager of the "Boston Advertiser" automobile department, has been appointed general manager of the Oakland Motor Car Company of New England. He will have charge of the wholesale department formerly handled by William B. Sawyer, now regional manager for the Oakland factory in this territory. Mr. Brown had been sales manager for the Boston Oldsmobile Company before entering the newspaper field.

Buys Three Agencies

DALLAS, Tex., April 19.—John E. Morris, largest Ford and Lincoln dealer in the Dallas territory, has bought the Glover-Johnson Auto Company of Corpus Christi, the Alice Motor Company of Alice and the Robstown Motor Company of

Robstown, three of the largest Ford and Lincoln agencies in south Texas. The amount involved was \$185,000. Mr. Morris has been in the automobile business for the last eleven years. He is past president of the Texas Automobile Dealers' Association and past president of the Dallas Automotive Trades Association. He will retain his agency plant here and will make his home in Dallas.

Road Convention Planned

WASHINGTON, April 15.-Plans for the 1927 road show and convention of the American Road Builders' Association will be completed at the yearly meeting of the organization to be held in New York City on May 14, it is announced Representatives of the U. S. Bureau of Public Roads will attend the May meeting, led by Thomas H. Mac-Donald, chief of the Bureau. More than 35,000 engineers, contractors and highway officials are expected to attend the 1927 convention, representing all parts of North and South America. A large part of the association will be in attendance at the May meeting.

Adair Sees Heavy Parts Business During April

NEW YORK, April 19.—There is every indication that April will be another big month in the accessory, replacement parts and original equipment business, according to Neal G. Adair, manager of the educational department of the Motor and Accessory Manufacturers' Association.

Returning today from a Middle Western trip Mr. Adair said that although one or two car producing companies had reduced orders, the original equipment business was holding up well and accessory and parts shipments to the trade in general for the month would probably rise well above the same month last year.

He saw no evidence of recessions, either in automotive or general business conditions. Even with poor weather automotive business had been good, and with fine weather now calling the cars on the road again there seemed to be no reason why April as a whole should not be a big business month.

Will Make Tractor Parts

ROCK ISLAND, Ill., April 19.-Production of tractor parts will be started soon in the International Harvester company warehouse here, located in the former Moline Plow Company tractor works. The building was taken over a year ago by International and used as an assembly, warehouse and distribution center but officials this month transferred Ezra H. Sohner, former assistant superintendent at their Fort Wayne motor truck plant, to organize a production unit in the plant, which is designed for tractor making, to relieve the Chicago and Milwaukee factories. Production will be under way in a short time. Mr. Sohner was superintendent of this plant when it was a Moline Plow unit from 1921 to 1924.

Spokane Figures Show March a Record Month

Both Wholesale and Retail Demand Gains Heavily with Shipments High

SPOKANE, Wash., April 19.—Dealers and distributors of automobiles in Spokane are elated over the increase in business indicated by the March report of the Washington Automotive Trades Association as compared with reports of registrations for the same month last year.

The total number of cars registered in Spokane during the month of March was 828 new cars, 712 used cars, 65 new trucks and 71 used trucks. The figures are not an accurate index of actual retail sales as some cars registered were "drive-aways," delivered to customers of dealers in other counties, who came to Spokane to take delivery and registered their cars in this city.

Indicative of the relation between wholesale and retail demand is the report of the Wells Chevrolet Company, which shows that while their retail sales during March were 108 new passenger cars their wholesale and retail sales were 415 cars. More new cars were delivered during any month since organization of the firm three and one half years ago, according to James Whitelaw, assistant manager.

Increases in sales for the month as compared with March, 1925, are general and the same holds true of the first quarter, according to several firms. M. O. Anderson, manager of the Eldridge Buick company, called attention to a gain of 125 per cent in cars delivered to retail buyers in the city of Spokane during the first quarter of the year, the figures being 24 for 1925 and 54 for 1926.

"Orders for the month of March totaled 42 against 16 in 1926, a gain of 160 per cent," said Mr. Anderson. "These are actual retail deliveries to Spokane customers."

Two Tons of Silver Paid

MILWAUKEE, April 19 .- Two tons of silver quarters collected from Wisconsin motorists as the fee for registration of title to their cars, required under the new law of 1925, have just been deposited with the state treasurer by the motor license division of the secretary of state's office. Disposition of the huge pile of silver was a perplexing one for three months as the fees began to accumulate and banks were unable to absorb such a large number of coins of a single denomination. Including license fees based on the weight of cars, the collections from owners in Wisconsin from Jan. 1 to April 15 exceeded \$6,340,000. Already 423,000 owners have paid fees. Of this number, about 405,000 paid the title registry fee in silver and the remainder included the amount in checks.

A. E. A. Sends Invitations For Big Annual Exhibit

Many Foreign Representatives of Industry Expected in Chicago Nov. 8-13

CHICAGO, April 19.—Invitations are being sent to automotive wholesalers in every foreign country to the eleventh annual convention and eighth annual show of the Automotive Equipment Association which will be held in the Coliseum in Chicago, November 8 to 13, 1926.

As in previous years it is expected that automotive wholesalers from many countries will take advantage of the invitation extended by the A. E. A. and will attend and get the benefits of the most important and latest developments in the automotive industry.

The number of foreign merchants attending has been increasing annually and each year the interest shown and the opportunities extended develop more contacts with members and more inquiries are received as, year after year, this great exposition is presented to the public.

Complete exhibits of leading lines of automobile accessories, supplies, shop and service equipment, machinery and tools will be shown. New inventions, models and items will be announced and displayed for the first time at this show. Many of the modern labor-saving tools and pieces of machinery will be in operation and demonstrations will be made. There will be many things for those persons who are also interested in the wholesale distribution of radio, airplanes and other modern inventions.

The exposition is not open to the public, admission being confined to the members of the association; their salesmen and representatives and friends from overseas who take advantage of this opportunity of seeing the leading lines of manufacturers of accessories, shop equipment, etc., which are exhibited.

Yellow Sues Livery Firm

WASHINGTON, April 19 .- The Yellow Cab Company here has filed suit to require the Yellow-Drive-It-Yourself System, Inc., operating licensed automobile hacks and cabs to show cause why it should not be enjoined from using the yellow designation. The complaint company alleges that since 1921 it has operated a large number of cars principally yellow or orange yellow which are familiar with the public as "yellow cabs" and that the cars of the drive-it-yourself" corporation beginning in March adopted "yellow" cabs which are strikingly similar to those of the original company's vehicles.

Chevrolet Adds Dealers

DETROIT, April 19.—During the last seven months the Chevrolet Motor Company added 1,619 direct and associate dealers to its selling force for a total

Martha's Vineyard Up-to-Date

BOSTON, April 19.—How times have changed! Now come officials of the island of Martha's Vineyard proclaiming to the world that motor cars are thick in its domain when a few years ago they were not welcomed readily, and for a long time they were barred from sister islands nearby. The island of Martha's Vineyard is 20 miles long and 5 miles wide and it claims a larger per capita ownership of motors cars than most other sections of the same area in the United States. It has one car to every 3.77 persons, its resident popula-tion being 4720. West Tisbury town confines has a car to every 2.7 people and other towns a car to every three residents.

of 7,500 dealers in all parts of the country. This is an increase of approximately 27 per cent. The continued and steady industrial development in the south and the expansion of its good roads system is reflected by the greater increase in dealer representation in southern territories, company excutives said. Typical of the increased buying power of the south are reports on new dealers from four of the larger representative branch offices. Atlanta, Ga., zone headquarters reported 107 new dealers handling Chevrolet cars; Memphis, Tenn., 100 new dealers; Charlotte, N. C., 68, and New Orleans, 52 new dealers.

Harmon Is Promoted

PORTLAND, Ore., April 19.—Glenn Harmon, who has been selling automobile trucks in this city for the past seven years, is announced as the new sales manager of the Republic truck company here. Harmon has reorganized the sales force and service departments, placing Harry Fox in charge of the latter department. The service shop has also been placed on a day and night operating basis. C. F. Harrison has been added to the retail force.

Rubber Now Below Pre-war

WASHINGTON, April 19.—Governor George W. Norris of the Philadelphia Federal Reserve Bank this week informed the House committee on banking and currency that the index price of rubber is 23 per cent below pre-war. Governor Norris was discussing the question of stabilizing prices of all commodities, as contemplated under the terms of the Strong bill which the committee now is studying. He explained in the early part of 1920 rubber declined steadily, reaching in 1922, 13.75 cents per pound at the New York market. The 1920 average for plantation smoked sheets, he continued, was 36 cents per pound; in 1921, 16.3 cents. From that there was a rise to \$1.05. It is now 53 cents but the pre-war level was 69 cents.

Schwab Gives Reasons For Business Optimism

Steel Magnate Sees Every Division of Industry in Excellent Condition

SYRACUSE, N. Y., April 19.—Before the Syracuse Chamber of Commerce, Charles M. Schwab, chairman of the board of directors of the Stutz Motor Car Co. of America, Inc., gave the following reasons for his optimism as to the business outlook:

"The American people as a whole are hard at work producing new wealth at an amazing speed. That means new purchasing power, new savings, new opportunities for expansion of production.

"Nature promises a year of bountiful crops on top of the enormous agricultural production of last year.

"Wage earners of this country are working in a spirit of greater peace with their employers than I have known in 25 years.

"Business men have been carrying on their work carefully in recent years and not indulging in speculative expansion resulting in over-production and the inevitable crash.

"Our railroads are providing a transportation service of greater efficiency than the people of this country have ever before enjoyed—thus making it possible to do business with smaller investors and reduced lines of credit.

"Through the operation of our banking laws, and by the reason of the prudence of those in charge of our banks, credit facilities have not been taxed, and the business of the country is generally sound."

Oakland Builds Addition

PONTIAC, Mich., April 19.—Rapid progress is being made by the Oakland Motor Car Company in the construction of the new factory addition which is to house the sheet metal stamping and rear axle housing departments. This new factory addition, with machinery, will cost three-quarters of a million dollars, according to A. J. Brandt, vice president and works manager, and will be in operation the first week in June. Already the steel frame is up and walls, roof and flooring are partially completed. Approximately 400 more men will be employed in the new departments.

Clarke Sells to Partner

BOSTON, April 19.—James E. Clarke has sold out his interest in the Clarke and Stevens Company, New England distributor of the Rickenbacker line, and associate dealer of the Oakland and Pontiac at Boston. He was formerly sales manager of the National Automobile Company at Indianapolis before coming to Boston. Mr. Clarke has some extensive radio interests which will occupy his time for the present.

Long Terms Cause Most Failures, Kroh Declares

N. A. D. A. Speaker Tells Evansville Meeting Public Is Buying on Own Plan

EVANSVILLE, Ind., April 19.—Long time acceptances were cited as the cause of the greatest number of dealer failures, in an address here before an open meeting of dealers, salesmen and service managers by A. R. Kroh, of the merchandising department, National Automobile Dealers' Association, in the Evansville Chamber of Commerce.

The successful dealer, it was said, is, in most cases, the man with small discount allowance, and the great mass of the American buying public is buying cars on its own terms owing to lack of ability by dealers to know how to properly market their merchandise.

"The American public of today is buying cars on its own terms due to too little effort on the part of the dealer organizations to improve in the business of selling, which is to say the proper training of live sales forces," Kroh said. "Training of efficient sales managers is more of a necessity than ever."

"The public should be approached by intelligent salesmen, and it is up to the dealer to make his sales staff a financial success. A real live sales manager is able to direct his salesmen, and assemble good live lists of prospects for regular interviews, rather than random lists of 'suspects.' The man who has the money to buy and the need for a car is the real prospect. A live dealer and sales manager never retires for the night without having his work outlined for the morrow.

"The automobile buying public today is asking more intelligent questions on car construction and performance, and sales managers and salesmen must be better informed on the makes of cars they are selling. Competition puts business into the hands of the fit. Criticism of a competitor's line of cars will not help business any. The car buyer today knows more about cars, and wants more proof to be satisfied."

Mr. Kroh criticised the lack of interest by many dealers in attending meetings and congresses aimed to improve business methods and conditions. Citing the example of many California dealers, Kroh said that in addition to over-production, long time acceptances have been the cause of most dealer failures. "No man has any business buying a car if he cannot pay for it in twelve months," he said.

The used car is not and never was a problem except in the mind of the individual dealer, according to Kroh. "No slick scheme will ever solve the question. It is a matter of principle. If you are not making money in your used car department, you have not 'arrived' in the industry. The success of the used car

business has nothing to do with deliveries of new cars.

"No dealer has any right to allow more for a used car trade-in than he would allow in a cash transaction. Used car acceptances should never exceed 20 per cent of sales. Never sell on the 'as is' principle. Every used car should be worth a guarantee or be so reconditioned that it may be worth one. Used car stocks should be turned over every 30 days."

In discussing service departments, Kroh declared the appearance and system of this department reflects the ability of the dealer. "The dirty shop is owned by the dirty-minded man," he said. It was pointed out that the most successful dealers are those who are allowed small discount allowances, and that the dealer is hurting himself by cutting a list price.

"Every dealer should make it a point to read regularly at least two good trade publications, and to patronize the home town papers through advertising," he declared.

E. E. Nolan, retail department manager of the Bennighof-Nolan company, and president of the Evansville Automobile Dealers' Association, introduced the speaker. The open meeting was held called in the interest of the N. A. D. A. national campaign for increased membership.

Buick Dealer Uses Novel Sales Promotion System

CANTON, O., April 19.—Dunkel McVey Company, Buick dealer, hit on a novel plan, which has resulted in the biggest spring sales in the history of the concern. Salesmen in talking with prospects advised them that in the event they bought a car, they would be permitted to go to the Buick factory at Flint, Mich., the company standing the expense, visit the factory, see how the cars are made, and drive home their own car.

On April 13 a party of 50 new Buick owners accompanied by officials of the Dunkel-McVey Company, left Canto in two pullmans, for Flint. Upon arrival there the party was conducted through the Buick factories, and each given the car he has purchased. Then with banners flying the pilgrimage home was started.

All expenses of the trip will be borne by the Dunkel-McVey Co. and this novel bit of exploitation is expected to result in further stimulating of sales. This concern reports it will deliver during the month of April 75 Buick cars, of all types.

Hold Automobile Show

MEDFORD, Ore., April 19.—Automobile dealers of Medford and the Rogue River Valley held their annual show in the armory here and as a result of many demonstrations considerable of the return from the annual pear crop this year will find its way into many of the new models which were on exhibition.

First Quarter Output of Trucks Is Ahead of 1925

Total with March Estimated Is 121,414 Compared with 107,649 Last Year

NEW YORK, April 19.—With first quarter production running about 12 per cent over the 1925 quarter there is every indication that truck and bus output this year will exceed last year's record production of 497,107.

First quarter production, with March estimated, was 121,414 compared with 107,649 in the 1925 quarter, a gain of 13,765. In the first quarter this year 24.4 per cent of the 1925 record total was produced.

Second quarter gain over the corresponding quarter last year is expected to be considerably larger than the first quarter increase. More trucks are being produced this spring than ever not only because of the demand for them by new users but also because sales for replacement are larger than ever.

The replacement market was never so large because trucks are in demand now to replace those built five, six and seven years ago, when production first assumed large proportions. The increasing importance of the replacement market added to the growth in demand from new users as reflecting healthy business conditions and good roads extension throughout the country are the chief reasons for the expectation that 1926 will exceed production of 1925.

The figures given here include buses as well as trucks. Probably not more than 3,500 of the 121,414 units produced in the first quarter were buses, with about 1500 of these credited to January and February, and about 2,000 March, and with April expected to exceed this 2,000 in accordance with the usual increase in bus output at this season.

Ferris Joins Blackhawk

MILWAUKEE, April 19.—W. P. Ferris, for the last four years sales director of Milwaukee Motor Products, Inc., has become sales manager for the Blackhawk Manufacturing Co., manufacturer of automobile socket wrenches, water pumps, Rest-A-Foot throttles for Fords and hand grinders. Mr. Ferris has had considerable experience in specialty selling during the last 15 years.

Auburn Enters Memphis

AUBURN, Ind., April 19.—The Auburn Automobile Company has just announced the appointment of the McClure Motor Company, Memphis, as distributor for Auburn Motor cars in eastern Tennessee and part of Mississippi and Arkansas. The McClure Motor Company has been in business in Memphis for the last six or seven years and Mr. McClure is one of the best known men in automotive circles in that city.

General Motors Plans Giant Permanent Show

Atlantic City Exhibit to Display All Products of Corporation

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DETROIT, April 19.—The General Motors permanent exhibit at Atlantic City, announcement of which was made by President Alfred P. Sloan, Jr., will be much more than an advertisement of the products of the corporation, it was learned here. It is planned to make the exhibit a definite aid to the General Motors sales organization throughout the country.

It is calculated that 20,000,000 persons visit Atlantic City annually, that virtually all of these will see the exhibit, and that a certain proportion will be so much interested in the products as to permit their enrollment as prospects. The exhibition staff will take names and even deposits, but these will be passed along to the dealer in the home town of the prospect. The dealer will be required to report periodically to the corporation on blanks prepared for that purpose his progress in completing the sale.

The exhibit will be located on the Steel Pier, with 22,000 square feet of floor space fronting directly on the boardwalk. It will include Chevrolet, Pontiac, Oldsmobile, Oakland, Buick and Cadillac cars, GMC truck and also the products of Yellow Truck & Coach Manufacturing Co., Fisher Body, Frigidaire, Delco farm lighting and power plants and various General Motors parts and accessories.

Complete products will be stressed rather than manufacturing processes or technical details. Moving pictures, however, will be shown of the operations at the factories. At night the exhibit building will be illuminated by an animated sign 65 feet long and a fixed electric sign 290 feet long. The exhibit will be thrown open in July.

The project appeals to the General Motors organization not only as an immediate source of advertising and sales but also as institutional publicity of the best sort, designed to fix in the public mind the thought of General Motors as an institution in back of the products bearing the names of its division.

Holds Anniversary Show

BALTIMORE, April 19.—The United Auto Sales Company, which has been distributor of the Studebaker line since 1916, recently celebrated the tenth anniversary of its distributorship with a spring show which attracted a great deal of attention. In connection with this event the house made announcement of its dealer organization in Maryland, listing the following: State Garage, Annapolis; S. E. Hubbard & Son, Cambridge; Cardiff Motor Sales Company, Cardiff; Caton Motor Corporation, Catonville; Church Hill Motor Company, Church Hill; Fleigh Motor & Tire Company,

Cumberland and Hagerstown; Scarbrough Motor Company, Elkton; Frederick City Garage, Frederick; Central Garage, Frostburg; Central Garage, Hancock; Pitcock Brothers, Havre de Grace; Independent Garage, Oakland; J. M. Hoshall & Son, Parkton; Thomas J. Casey, Patapsco Neck; T. R. McMullen & Son, Perryville; Farmers & Merchants Garage, Pocomoke City; Scott Wilson & Son, Rising Sun; F. H. Casbell, Rockville; William P. Pope & Son, Salisbury; The Auto Paint Co., Inc., Smithsburg, and Charles W. Klee, Westminister.

Inland Enlarges Plant

DAYTON, April 14.—Inland Mfg. Co has started a program of enlarging its capacity which calls for expenditure of approximately \$300,000 within the next few months. The company is a division of General Motors Corp. and is largely engaged in the manufacture of steering wheels and rubber parts. The plant has a capacity of 6000 wheels daily and has been running at this rate for several months. The wheel capacity will be increased by about 25 per cent with the new plant additions, and additional facilities for the manufacture of both hard and soft rubber automotive parts.

Take Auburn Sales

BALTIMORE, April 19.—Raymond Thompson, Inc., Baltimore, which for the last five years has confined its activities to the Wills Sainte Claire line, has now become distributor for the Auburn line. The house has received a shipment of Auburn cars for demonstration and display.

Deuster Joins Briggs

NEW YORK, April 19.—Herman Duester, for five years manager of the traffic department of the Motor and Accessory Manufacturers' Association, has resigned to take charge of traffic work for the Briggs Manufacturing Co. Mr. Duester was formerly with the Erie and Ontario & Western railroads. No announcement has been made as to his successor at the association.

March Greatest Month In History of Hupp Co.

Former Record in November, 1925 Is Surpassed by 8 Per Cent, Report Shows

DETROIT, April 19.—March was a great month for the Hupp Motor Car Company. Both in number of cars manufactured and in sales volume in dollars, it was the largest in the history of the organization. It surpassed November, 1925, the record month, by 8 per cent in the number of cars and a still higher percentage in dollar sales volume.

During the last week of the month the company established four new records when it had the greatest single day's production in its entire history, the greatest week production, the largest single day shipment and the largest week shipment.

The company has announced that its total shipment for the first three months of the year exceeded those for a similar period in 1925 by 45 per cent. Domestic shipments were 47 per cent better than those for the corresponding period last year, while the exports were 38 per cent better. The total shipments in March 1926 were 29 per cent higher than for March, 1925, while the export shipments were 63 per cent better than in March, a year ago.

At the end of the month, on March 31, the company carried over and filled orders for more than \$1,300,000 worth of cars. Orders received April 1, for more than 1,000 cars, give it more than \$2,700,000 worth of unfilled orders.

According to O. C. Hutchinson, general sales manager, the demand for both the six and eight cylinder cars has been uniform throughout the country. Both models are being sold by distributors and dealers at the fastest rate they have ever attained. As a consequence, the company is planning still greater output for the coming months.

Gabriel Snubber Men Dine



Photograph of fourth annual convention and dinner of distributors of Gabriel Snubbers held in Chicago this spring.

TRADE ASSOCIATION ACTIVITIES

N. S. P. A. COMPLETES DETAILS

Twice as Much Floor Space Provided for 1926 Show in Chicago

DETROIT, April 19.—The 1926 National Standard Parts Association convention and show will be held Nov. 15-19, inclusive, in the Hotel Sherman, Chicago, it has been officially announced at the office of E. P. Chalfant, executive vice-president of the association. Arrangements have been made providing twice as much floor space as was available last year.

C. W. Moffett, president of the association and chairman of the show committee, said:

"Plans are under way to make the 1926 show a landmark in the history of the replacement parts industry. More exhibition space has been provided than heretofore and it is confidently anticipated that all manufacturer members will show representative exhibits of their lines. Non-member jobbers and foreign distributors visiting this country will be invited and no stone will be left unturned to make this a successful undertaking. Only those manufacturers belonging to the N. S. P. A. can exhibit."

For the second day of the convention and show, Tuesday, Nov. 16, a banquet is planned which will be a truly social get-together of members and guests and their ladies. Speeches and business discussions will not be on the banquet program. Entertainment will consist of high class vaudeville.

Members to Get Rebate

WASHINGTON, April 19.—Report that the 1926 automobile show was a complete success was made by Rudolph Jose, chairman of the show committee, at the April meeting of the Washington Automotive Trade Association held at the City Club. Mr. Jose said members will receive a 75 per cent rebate from the proceeds of this year's show.

The question of installing an executive secretary was the principal topic discussed at the meeting. Chester Warrington read letters from a number of prominent associations in various sections of the country indorsing this move-

Walter Guy, legal counsel for the association, read recommendations for the new traffic code, and they were approved by the association.

Garage Owners Aroused

SAN FRANCISCO, April 19.-Installation by the Associated Oil Company of grease racks at its stations in San Francisco, and the announcement that simequipment is to be put in at all gasoline and oil stations of this company throughout the state, has aroused the opposition of the Garage Owners' Association, a section of the San Francisco Automobile Trade Association. Some 30 of these grease racks have been installed at Associated Oil Company stations in San Francisco. The Garage Owners' Association, after considering the situation at two meetings, and investigating the attitude of the oil company, issued through Arthur D'Ettel, its secretary, the following letter to its members:

"The committee of the Garage Owners' Association which was appointed for the

purpose of investigating reported at the meeting of the association held March 25, 1926, that the Associated Oil Company is in process of installing grease racks in conjunction with its service stations.

"This is a matter entirely up to the individual garage owner. It is a business competitive with what you are doing. The ethics established by all of the other wholesalers with whom you are doing business is that they sell to the trade only. Use your own judgment on what you decide to do about continuing to patronize one who goes into direct competition with you."

Radio Makers to Meet

NEW YORK, April. 19 .- At the Radio Manufacturers' Association convention at Hotel Ambassador, Atlantic City, May 10 efforts will be made to offset the idea that radio is a seasonable business. There will be joint sessions of the association with the National Radio Trade Association, Radio Writers' Association National Association of Broadcasters, National Farm Radio Council, Broadcast Listeners' Association of America, Radio Magazine Publishers' Association and the International Radio Week Committee. Among the speakers will be Maj. Herbert H. Frost, president of the R. M. A.; Maj. Gen. C. McK. Saltzman, chief signal officer, U. S. A.; Powel Crosley, Jr., chairman of the International Radio Week Committe; Dr. E. W. White, who as member of the committee of the relations of electricity to agriculture will tell how to reach the farm market; Henry W. Shaw, president, N. R. T. A.; L. H. D. Wald, research director for Swift & Co., who will discuss distribution, Paul Klugh, executive chairman of the N. A. B.; H. H. DeMott, president, R. M. P. A.; G. L. Noble of the National Farm Radio Council; Harry LaMertha, president, R. W. A.; Jacob M. Arvey, chairman, Chicago radio commission, and W. H. Lynas, of the Grand Council of Radio Manufacand Merchandisers' of Britain.

Boston S. A. E. Meets

BOSTON, April 19.-Tires and comfort were the subjects presented and discussed at the April meeting of the New England Section of the S. A. E. Professor E. H. Lockwood of Yale was first introduced by Chairman M. R. Wolfard. He is associate professor of mechanical engineering at the Sheffield Scientific School at Yale, and is widely known in motor circles through his work on the chassis dynamometer and the Lockwood Riding Comfort Indicator. He gave a talk on "Measurement and Slip of Pneumatic and Solid Rubber Tires." fessor Edward P. Warner, in charge of the department of aeronautics at Massachusetts Institute of Technology, who is vice-chairman of the S. A. E. section here, was the other speaker. He gave an address on "Riding Comfort." talks were listened to attentively, and when the session ended there was a general discussion of both papers, during which many points were brought out not covered in detail by the speakers. The meeting was well attended by automotive, tire and accessory men in Boston. Preceding it there was a dinner with Professor Lockwood as the principal guest.

MONTREAL ELECTS J. E. SMITH

Canada Ford General Manager Heads Trade Association

MONTREAL, April 19 .- J. E. Smith, general manager for Montreal of the Ford Motor Company of Canada, was elected president of the Montreal Automobile Trade Association at its annual meeting. The other officers elected were Maj. F. T. McKeen, D. S. O., vice-president; Alex Renaud, treasurer; T. R. Price, secretary; Florian Leduc, J. O. Linteau, Harry Jones, directors, and Theo. Dorian, The association, executive secretary. which represents some 400 members of the trade in the province of Quebec, comprising manufacturers, distributors and dealers in automobiles and in automotive equipment, is preparing a program for this year which will cover the field of promoting the interests of the trade as well as that of automobile owners. The new board will enter into functions immediately and among the activities of this year will be the preparation of the 1927 Montreal Motor Show, which the association intends to make a bigger event than ever.

Richmond Hears Kirkland

RICHMOND, Va., April 19.—Henry Kirkland of the merchandising department of the Automotive Equipment Association and Donald Blanchard, technical editor of "Motor World Wholesale," were the speakers at a meeting of the Richmond Automotive Trade Association recently. Numerous practical methods of selling automotive equipment and maintenance service were presented by the speakers. The meeting was closed with a showing of the A. E. A. film "Profitable Maintenance." The meeting was arranged by the local membership of the A. E. A. consisting of the Benton-Bailey Co., Benjamin T. Crump Co., Richmond Hardware Co., E. I. Taylor Co. and the Crawford Mfg. Co.

Discuss Oil Filters

LOS ANGELES, April 19.—Oil filtering devices came in for analysis at the April meeting of the Southern California section, Society of Automotive Engineers, which was well attended. W. W. MacDonald, of San Francisco, a prominent member of the northern California section, led the discussion. He declared that the use of proper oil filters prolongs the life of the wearing parts of the engine. He gave a description of various devices on the market and presented figures showing the amount of wear with or without filters.

Discuss Service Budgets

New York, April 19.—Control of service station operations through the medium of a budget was the topic discussed at the regular meeting of the Automotive Service Association of New York. The principal speaker, J. E. Mills, service manager of the Packard branch in Detroit, explained how a budget is established and applied to service station management. In the discussion following the presentation of Mr. Mills' paper, Harry Ferris, service manager of the local Autocar branch, testified to the savings the budget plan has effected in his station.

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Ralph DePalma Enters Two Cars in May Race

Courageous Driver Has Taken Part in 10 of 13 International Sweepstakes Races

INDIANAPOLIS, April 19.-Ralph De-Palma, without question the greatest popular idol that ever drew on a pair of racing goggles, has entered two cars in the fourteenth annual International Sweepstakes May 31 at the Indianapolis Motor Speedway. Starting his racing career in 1907, DePalma has lived through a series of accidents in his 19 years of racing that would have stopped a less courageous driver.

Of the thirteen International Sweepstakes run at the greatest race course in the world, Ralph has taken part in 10. He started out in the 1911 race by finishing a Simplex fourth. In 1912 came the greatest point in his career when, after putting his Mercedes to the front and leading the second man by 20 miles, he saw victory slip through his fingers on the last lap of the race. DePalma's motor died at the head of the front stretch on his last lap and he pushed his car to the tape, only to be totally disqualified because it had not crossed under its own power.

In 1915 Ralph showed the field the way to go home with another Mercedes. He finished a Packard sixth in 1919; and a French Ballot fifth in 1920. He came up to fourth place with a Duesenberg in 1922. The year 1923 he was with the Packard Company driving his car 69 laps. In 1925 he finished his Miller Special in

seventh place.

While DePalma has entered two cars, he has not named them. He is working on them in his Los Angeles workshop. DePalma will no doubt be one of the early birds at the track for practice, for it is well known that he has withdrawn from board track racing in favor of the dirt speed paths and the Indianapolis Motor Speedway, which DePalma says takes more skill in driving than any other track in the world.

Entries announced thus far in addition to DePalma are three Schmidt Specials, from France, Dave Lewis, in a front-drive Miller; Harlan Fengler in a car yet unamed; the Hamlin front dive, of Chicago. T. E. Myers, secretary-manager of the Motor Speedway, says that it is his opinion that the entry list this year will easily top 30.

New Oakland Dealers

PONTIAC, April 19 .-- New dealers added by Pontiac-Oakland include the fol-

Borgren & Robinson Co., Petosky, Mich.; White Motor Sales, Adrain, Mich.; Wedgwood Auto Co., Inc., Welch, W. Va.; Cadillac Sales Co., Greenville, S. C.; O. B. Opheim Sales Co., Eau Claire, Wis.; Larsens Garage, Aptos, Calif.; The Howell Motor Co., Lima, Ohio; Hodge Motor Sales

Coming Motor Events

Automobile Shows

	1927	NATIONAL	SH	ows	
New	York			Jan.	8-1
Chica	ago		Jan.	29-F	eb.

Fargo, N. D.....July 12-17 Denver, Colo.....Aug. 3-6Nov. 15-19

(Annual show and convention of National Standard Parts Association.)

Races

Atlantic City, N. JMay	1,	1926
Charlotte, N. CMay	10,	1926
Indianapolis, IndMay	31,	1926
Altoona, PennsylvaniaJune	12,	1926

COMING FEATURES OF CHILTON CLASS JOURNAL PUBLICATIONS erence Number.

Salem, New HampshireJuly 5,	1926
Atlantic City, N. JJuly 17,	1926
Altoona, PennsylvaniaSept. 6,	1926
Salem, New HampshireSept. 25,	1926
Atlantic City, N. JOct. 27,	1926
Charlotte, N. CNov. 11,	1926
Los Angeles, CalNov. 25,	1926

Conventions

Texas Automotive Dealers' Association, Tenth annual, Galvez Hotel, Galveston, Tex., May 12-13.

Automobile Body Builders' Association, annual Hotel Statler, Detroit, June 8-10. Exhibition in connection.

Automotive Equipment Association sum-mer convention, Mount Royal Hotel, Montreal, Canada, June 14-19.

American Electric Railway Association, 45th annual, Cleveland, O. Oct. 4-8. Exhibition in connection.

May 6-Motor Acr-Sales and Service Ref- May-Automobile Trade Journal-"Big-erence Number. gest Market" Issue.

Co., Carmi, Ill.; Best Bros. & Aber, Mc-Connelsville, Ohio; C. R. Heck, N. Lima, Ohio; Magruder Motor Co., Inc., Glasgow, Mont.; Todd-Bower Motor Co., Logan, W. Va.; Franconia Motor Co., Worcester, Mass.; Flaxville, Hdwe. Co., Flaxville, Mont.

Hogle Motor Co., Okla City, Okla.; Gamble Motor Company, Emporia, Kas.; George T. Ames, Derby Line, Vt.; John D. Miller, Bellingham, Wash.; R. C. Schell, D. Miller, Bellingham, Wash.; R. C. Schell, Beardstown, Ill.; Stanley's Garage, Norridgewock, Me.; Suffield Garage, Suffield, Ohio; Walter H. Schultz Garage, Trenton. N. J.; Chas. D. Anderson, Crosswicks, N. J.; W. J. Paddison, Glen Cove, N. Y.; Seward Chevrolet Co., Seward, Neb.; Andrews Motor Co., Council Bluffs, Iowa; Princeton Motor Co., Inc., Princeton, W. Va.; Holemn's Garage, Portsmouth, N. H.; Long Motor Co., Ravenna, Ohio; Colonial Garage, Akron, Ohio.

Garage, Akron, Ohio.

East Liberty Garage, E. Liberty, Ohio; Clayton Motor Co., Coleman, Tex.; Zumwalt Motor Co., Louisiana, Mo.; Pesotum Garage, Pesotum, Ill.; Haywards Motor Co.; Haywards, Calif.; Mensch Hdwe Co., Marienville, Pa.; O. J. Bauder, Bradshaw. Neb.; Love Auto Co., Prescott, Ark.; Nicol Garage, Frankfort, Ky.; Howard Motor Sales, Norwich, Conn.; The McMahon Hdwe. & Imp. Co., Fairfax, Mo.; Day-Gibson Motor Co., Billings, Mont.; W. D. Wright Co.; Oakland, Calif.; Swarthout & Hughes, Hermosa, Calif.; Tri Cities Motor Co., Beaumont, Tex.; Forrest-Lindsey Motor Co.; Waco, Tex.; Conrad Motor Sales, Peru, Ind.

Garland Motor Co., Jackson, Miss.; Geo.

tor Sales, Peru, Ind.
Garland Motor Co., Jackson, Miss.; Geo.
E. Staner Motor Co., Muskogee, Okla.;
Harmon & Jenkins, Ft. Fairfield, Me.; R.
L. Crutcher, McAlester, Okla.; R. E. Wells
Motor Co., Coshocton, Ohio; Partington
Elsner Motor Sales, Sidney, Ohio; A. W.
Younger Co., Girard, Ohio; Cushner's Motor Sales, Bristol, Conn.; Antonio Malinski, Thompsonville, Conn.; The A. C. Hine
Co., Waterbury, Conn.; Clayton Motor Co.,
Ballinger, Tex.; Blose Bros., Bethlehem,
Pa.; Hordstrom & Sons Garage, Hartford,
Conn.

Hold Used Car Sale

DALLAS, Tex., April 19.—Thirty-seven automobile dealers co-operated here in a special sale of used cars. The sale is an annual event known as the "Red Tag"

sale, because during that sale the pedigree of the car offered, together with the price and terms, are printed on a red tag and put on the car for the benefit of the customer. This tag gives the year model, states whether it has been reconditioned, repainted and new tires put on or whether it needs certain repairs before it will be in first class condition. In connection with "needed repairs" the tags state exactly what the trouble is. If dealer is offering free service on the car for a given number of weeks that is stated. The dealers reported a good number of later models moved at fair prices during the sale. Plans are being made for another sale in a short time.

Takes Oakland-Pontiac

BOSTON, April 19.-The Clarke & Stevens Company, New England distributor of the Rickenbacker, has signed a contract to handle the Oakland and Pontiac as associated dealers for the Metropolitan Boston district.

Kucker Joins Stutz Chicago

CHICAGO, April 19.—The appointment of C. W. Kucker as manager of the wholesale department is announced by F. D. Cerf, president of the Stutz Chicago Factory Branch, Inc. Mr. Kucker succeeds R. A. Norris, who has been made assistant manager of the retail sales department. Mr. Kucker has had a wide experience in the motor car industry in every department and for a number of years was with General Motors, and formerly manager of the wholesale department of the Stutz distributing agency. After leaving the Stutz distributing agency about three years ago, Mr. Kucker identified himself with the Manufacturers' Finance Trust, where he rose to the position of sales manager.

April 22, 1926

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Prices and Weights of Current Passenger Car Models

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SHIP.	ASS. B	ODY STYLE.	PRICE	SHIP. WT. PA	ss. Bo	DY STYLE. P	RICE	SHIP. WT. P.	ASS. E	ODY STYLE	PRICE	SHIP. WT. P.		BODY STYLE.	PRICE
AJAX				CHRYSI	ER (Continued)		ELCAI	R	"4-55"		JE WE	467	New Day" Touring DeL.	\$1.095
2210		in. W. B. Touring	\$865	2805 4	-р Е		\$1,625 1,395	2560	5-p 4-p	Touring Roadster Coach	\$1,095 1,295 1,195	*******	5-p 5-p 5-p	Sedan Sedan De Lux	995
2410	5-p	Sedan	995		-n (Phaeton Coach	1,445	2900	5-p 3-p	Coupe	1,295 1,395	JORDA	AN		- 1
3100	5-p	"6" Phaeton	\$1,575		-p I	Royal Coupe Brougham	1,795 1,865	2779	5-p	Sedan "6-65"		******	4-p	"J" Playboy Road	1. \$1,845
3130 3145	5-p 4-p	Sp. Phaeton Coupe	1,650 2,050	3060	i-p 8	Sedan Royal Sedan	1,695	******	5-p 4-p	Touring Roadster	1,295 1,495	*******	5-p 4-p	Sedan Victoria	1,945
3570	5-p	Sp. Sedan	2,100		5-p	Crown Sedan	2,095	2779	5-p	Coach	1,395 1,495	3340	5-p	Series "A" Touring	2,275
3520	5-p	"ST. 8" Sp. Phaeton	\$1,995		(120	"80" in. W. B.)		2900	3-p 5-p	Coupe Sedan	1,595	3625	5-p	Brougham Sedan	2,575 2,675
3750 3790	4-p 5-p	Coupe Sedan	2,450	3730		Roadster Phaeton	2,885 2,645		4-p	"8-81" Roadster	2,315	3525 3470	5-p 7-p	Sedan	2,675
AUBU		1-44"		3775 4105	5-p	Sedan	3,395	3000	7-p 3-p	Touring Coupe Road	2,265 2,195	KISSI	EL	448899	- 1
	5-p	Touring	\$1,145			in. W. B.)	3,195	*******	4-p 5-p	Coupe Sedan	2,095 2,265	3130	2-p	"55" Speedster	\$1,795
*******	5-p	Roadster Coupe	1,145	4225	7-p	Coupe Sedan	3,595	4050	7-p	Sedan	2,765		2-p 4-p	Sp'dster Del Speedster	2,085 1,895
*******	5-p	Sedan "6-66"	1,195	4260 CLEVE	_	Sedan Lim.	3,000	ESSE				3530	4-p 2-p	Sp'dster Del Enc. Speedst	L. 2,185 ter 2,085
2850 2860	4-p 6-p	Sport-Roadst Touring	er 1,395 1,395		5-n	Touring	\$945	2185 2395	5-p 5-p	Touring Coach	789*	*******	4-p 4-p	Enc. Speeds	ter 2,185 eL. 2,685
******	3-p	Coupe	1,445			Tour'g DeLux	1,035	not q	livere uote I	d, Detroit.	MITS. GO		2-p	Enc. Spd. De Tourster	eL. 2,585 1,795
3020 3070	5-p 5-p	Brougham Sedan	1,695	2695	5-n	Sedan De Luxe Seda	1,090 n	FLIN				3190	4-p 4-p	Tourster De	
3070	*****	Wanderer	1,745	2800	5-p	"43" Touring	1,145	3325	4-p	"E-80" Sport Road	. \$1,945	2980 3170	5-p 5-p	Phaeton De	L. 1,785
3180 3200	4-p 6-p	Sport-Roadst Touring	ter 1,695 1,695	2915	3-p	Coupe Sp. Touring	1,225 1,295	3245 3310	5-p 4-p	Touring Sp. Touring	1,595 1,945	*******	7-p 7-p	Touring Del	L. 1,685
3380	3-p 5-p	Coupe Brougham	1,745	2975 3145	5-p	Sedan Sedan DeLux	1,345	3245 3595	4-p 5-p	Coupe Sedan	2,045 2,195	3430	4-p	Coupe Roads Coupe	2,085
3450	5-p	Sedan Wanderer	1,995 2,045	3215 3215	5-p 5-p	Sport Sedan	1,625		7-p	Sedan "B-60"	2,395	3540	4-p 5-p	Coupe DeL. Broug. Seds Brg. Sed. D	2,485 an 1,995
3450 3750	7-p	Sedan	2,095	CUNN	INGH	''V-6"			4-p	Roadster	1,395 1,285		5-p 5-p	Brg. Sed. D Brougham	eL. 2,485 2d. 1,695
BUI		'Standard'		4600	7-p	Touring	\$6,650	2715	5-p 4-p	Touring Coupe Roa	dster 1,495	4070 4010	7-p 7-p	Sedan De L Ber. Sed. D	uxe 3,085
2845 2955	2-p 5-p	Roadster Touring	\$1,125. 1,150	4500 4700	4-p 4-p	Sp. Touring Coupe	6,150 7,600	2940 2965	5-p 5-p	Sedan 4d. Brougham	1,525 1,575	3530	5-p 5-p	Victoria Victoria De	2,185
3020 3150	2-p 5-p	Coupe 2 d. Sedan	1,195 1,195	5000	6-p	Limousine	8,100		5-p	"Z-18" Coach	1,085	*******	9-p	"75"	
3110 3230	4-p 5-p	Coupe 4 d. Sedan	1,275 1,295	DAGM	LAR	"6-70"		*******	5-p	DeL. Coac	h 1,185		2-p 2-p	Speedster Spedster D	2,195 eL. 2,485
		"Master" 20 in. W. B.)		3750 3800	4-p 4-p	Roadster Sp. Tourer	\$3,500 3,500	FOR		tarter and I	em. Rims		4-p	Speedster D	2,295 eL 2,585
3350	2-p	Roadster	1,250 1,295	3700 4200	4-p 4-p	Phaeton Petite Coupe	3,500	1526		Runabout	\$290		4-p 2-p	Enc. Speed	ster 2,480
3515 3670	5-p	Touring 2 d. Sedan	1,395	4200	5-p	Petite Sedan De Luxe Cou	4,500	1557 1607		With Balloo Touring	310	*******	2-p 4-p	Tourster	2,195
3765		Sedan 28 in. W. B.)	1,495	4500 4700	4-p 5-p	Sedan	4,700 4,750	1640		With Balloo arter and De	n Tires 355	*******	4-p	Enc. Spd. I	DeL. 3,085 DeL. 2,385
3570 3635	4-p	Sp. Roadsto	er 1,495	4800	7-p	Sedan "6-60"	2,100	1645		Runabout	375		5-p	Phaeton	1,985
3805 3855	3-p	Country Cla		3100 3200	2-p 4-p	Roadster Sp. Touring	1,985	1655		Touring	n Tires 400 395			Touring	2,085
3940 4025	5-p	Brough. Se Sedan		3150	5-p	Touring Sedan	1,785 2,445	1738		Coune	n Tires 420 500			. Coupe Road	dster 2,000
	DILLA		2,000	3500 DAV	5-p	Bodan	-,	1860		With Balloo Sedan, Ti	n Tires 525 idor 520 on Tires 545		. 4-I	Coupe De	2,485 Luxe 2,885
0.11	"31	" Standard I 132 in. W. B.				"92" Roadster	\$1,495	1972	2	With Ballot Sedan, F	on Tires 545 order 565 on Tires 590		. 5-I	Broug. Sec	Del. 2,939
4040	0 2-p	Coupe	\$3,045	2660 2915	4-p 5-p	Legion. Tou		2004	4		on Tires 590		. 5-1	p Brougham	1 11XH 2'400
4210		Sedan	3,195 3,295	3000 3060	5-p 5-p	Sedan Imperial Sed	dan 1,795	FR	ANKL	"11"			. 7-1	p Berl, Sed.	DeL. 3,585 2,585
4110		Brougham Imperial	2,995 3,435	2325	5-p	"93" Touring	\$1,285				ad. \$2,750 2,631		7-1	p Victoria I	DeL. 2,885
412	5 4-p		3,095	2500 2450	5-p 3-p	Sedan Coupe	1,285 1,285	296 317	5 3-1	Coupe	3,09	LE	XING	"6-50"	\$1,895
		(132 in.)		DIA	NA "S		** ***	290	0 2-	p Sp. Coup				p Touring	1,895 2,245
406	5 3-r	Roadster 138 in. W. B	3,250	2995 3275	5-p 5-p	Roadster De Luxe Se Cabriolet	\$1,795 dan 2,195		5 7-	p Limousin	e 3,27	342	5 5-	p Landau S	edan 2,245
412 410			3,250 3,250	3160 3170	5-p 5-p	Sedan De L	uxe 1.995	313			edan 3,17	2 340	0 5-		OH whh
430 430	0 5-1	Coupe	4,000 4,150	3640	7-p	Sedan (135	1n.	GA	RDNE	"6-A"		446	0 2-	p Roadster	\$4,000 4,000
440	0 7-1	Suburban	4,285		7-p	Berline Sed	an 2,89	316		p Touring	\$1,39 lster 1,39	5 450	5 4-	p Phaeton	4.000
CA		•	2, 200	DOD 2448	2-p	ROTHERS	\$ 79	5 344	10 5-	p Brougha	m 1,54	5 478	60 4-	-p Coupe	4,600 4,800
326		J. I. C. Roadster	\$1,840	2538	2-p	Special Ros	79	5		"8-A"		488	30 5-	-p Sedan -p Sedan	4,900 5,100
329	90 5-	p Touring	1,885	2642	5-p	Spec. Tour	ing 84	5 352		p Sp. Road	1,79 lster 1,79	5 40	15 7.	-p Sedan -p Limousine	
364	40 5-	p Sedan	2,590	2703	2-p	"B" Sedan	89	0 35		p Cabriole	2.09	5 LO	COMO	BILE "48"	
301		"Y"		2943	5-p	Spec. "B"	Sed. 94 Sed. 1.07	5 37	30 5	p Imp. Se p Sedan	dan 2,09	5 528	30 4-	-p Sportif To	7.400
39 43		p Touring p Sedan	2,225 2,975						RAY	"S"		53 56	30 5	-p Victoria S	edan 10,000
		ER "35"		Doi	ESENE	Straight "8"			55 5	-p Sedan	\$84	00	40 7		
30	90 2-	n Roadster	\$1,695 uring 1,545	3920		Roadster			ERTZ	"D-1"		58 56	68 7 00 7	-p Cabriolet	10,300
32	85 5- 23 7-	p Touring	1,64	3700	5-r	Phaeton	\$6,65 on	+	5	-p Touring	****	1 21	00 2	"Jr8" Roadster	2,150 1,785
35	09 5- 25 5-	p Broughan p Met. Sed	n 1,695 an 1,895 Sedan 1,596		5 5-I	Sedan			UDSO	-p Sedan	*****	30	00 5	p Touring	2,360
		-p 20th C'y -p Sedan	Sedan 1,590 1,99			acturers do	not quo			"Super Si		34	00 5	5-p Sedan 5-p Broughan	2,285 m 2,385
	HEVR	LET			prices	3.		33	885 5	n Coach	1,20 m 4d. 1,46	4*		"90"	Tour 5,500
		uperior" (Seri -p Roadster		0 1	PON'		\$2,6	26	140 7	-n Sedan	1.69	9.	4	4-p Sportif	5,900 6,950
18	375 5	-p Touring	51	355	0 5-1	p Touring	2,6	00 n	ot quo	te F. O. B.	prices.		8	4-p Coupe 5-p Victoria	Gadon 7 300
2	130 5	-p Utility C	64 73	5 300			edan 3,4		UPMO	BILE "A"				7-p Sed. (div	7,500
		-p Sedan -p Landau		E	RANT					5-p Touring	\$1,3 1,3	25		7-p Limousir 6-p Brougha	~ KOO
C	HRYS	LER "58" (109 in. W.	R)	230		A-22	\$ 7	30		"E-2"		M	[cFAR		
		-p Roadster		0 238	0 5-	p Spec. Tou	ring 8	05 3 25 3	362	7-p Touring	2,0				adetor Z. WV
2	405	r Touring		5 248	30 4-	p Spec. Cou	8	80 3	500	4-p Coupe 5-p Sedan	2,3	345 3	600	5-p Touring 7-p Touring	2,650 2,750
2 2	510 E	5-p Coach 5-p Std. Sed					an 9	95 3	580	5-p Berline	4,				A a

Prices and Weights of Current Passenger Car Models

April 22, 1926

or Age

	Prices and weights of	dui		0				
=	HIP. STYLE PRICE SHIP. WT. PASS. BODY STYLE	. PRICE		BODY STYLE. F	PRICE		BODY STYLE. P	
W	VT. PASS. BOD 2 (Continued) OVERLAND (Continued)		REVERE	(Continued) "M"		3735 5-p 3895 7-p		\$2,39 5 2,495
	"SV" (11234 in. W. B.)	000	3700 2-p 3800 4-p	Roadster Sportster	3,200	4035 5-p 4035 5-p	Sedan Brougham	2,750 2,750
	850 4-P Sedan 3,180 2443 5-P Std Sedan 850 5-P Spec Sedan 3,180 2584 5-P Sedan De L	uxe 1,095	3970 5-p 4400 5-p	Touring Sedan	4,000	4020 4-p 4090 5-p	Coupe Sport Sedan	2,850 3,050
-	3850 7-p Sedan 3,380 PACKARD "6"		RICKENB			4200 7-p STUDEBAR	Sedan ER	3,150
**	7-p Sub. Sedan 3,480 (126 in. W. B.) 5-p Brougham 4d. 3,180 3643 4-p Roadster	\$2,785	C	"E" 117 in. W. B.)		8	standard Six	41 102
**	"TV" 3653 5-p Touring Sp. Touring	2,585	3038 5-p 3068 7-p	Touring	\$1,750 1,795	2760 3-p 2810 3-p	Du. Roadster Sport Roadster Du. Phaeton	
1	4000 4-p Sp. Touring 5,600 3753 4-p Coupe 6,720 3937 5-p Sedan	2,585 2,585	3116 5-p	Roadster	1,795	2870 5-p 2945 3-p	Country Club Coach	1,295
	4900 4-p Tour. Sedan 6,720 (133 in. W. B.)	\$2,780	3202 5-p	Brougham	1,895 er 1,920	2980 5-p 3260 5-p 3260 5-p	Sedan Sedan	1,295
	6-p Sedan 6,720 4043 7-p Sedan	2,785	3040 4-I 3317 5-I	Coupe DeLux	2,095		Special Six	
	7-p Spec. Sedan 6,810 4133 7-p Sedan Lim.	2,885	3353 7-1	Sedan	2,195	3380 3-p 3500 4-p	Du. Roadster Sp. Roadster	1,595
	7-p Sub. Sedan 7,110 (136 in. W. B.	33.990 1		"B-8" 121½ in. W. B.)		3495 5-p 3685 4-p	Du. Phaeton Victoria	1,445
	"Straight 8" 4090 5-p Touring	3,750	4-1	p Roadster	\$2,195 2,150	3710 5-p 3520 5-p	Brougham Coach	1,795 1,445 1,895
	4-p Roadster 2,909 4242 4-p Coupe	4,650 4,750	5-1	p Touring	2,195	3875 5-р	Big Six	1,090
L	5-p Touring 2,750 4528 5-p Sedan	5,775	3445 5-	ster	3,250	3785 7-p	Du. Phaeton	\$1,775
	5-p Sedan 3,380 (143 in. W. B	\$3,950	3486 5- 3345 4-	p Brougham	2,295	4030 5-p 4030 5-p	Coupe	2,045
	7-p Sedan 3,480 4655 7-p Sedan	5,000	3440 4- 3603 5-	p Coupe DeLux	e 2,395 2,495	4050 7-p 4080 7-p	Sedan	2,145 2,225
1	5-p Coach Broug. 3,180 A710 7-p Sedan Lin	n 9,100	3640 7-	p Sedan	2,595 an 5,000		120 in. W. B.)	
	5-p Town Car 4,000 "24-26" (125 in. W. B	5.)	ROAMEI			3320 3-p 3425 4-p	Sport Roadst	er 1,64
	"74" 5-p Std. Sedan De	n \$1,495 Luxe 1,670	"6-50	-55" (115 in. W.		3505 5-p 3750 5-p	Club Coupe	1,650
	3695 2-p Speedster 3,295 4-p Cab Road	1,995	5-	p Spec. Sp. Tou	rer 1,395 1,395	3760 5-1 STUTZ		1,89
	3704 7-p Touring 3,295 7-p Limousine 4080 5-p Std. Brougham 3,295 (115 in. W. B	3.)	5-	-p Bus. Coupe -p Coupe -p Sedan DeLu	1,395		"A-A" p Spedster	\$2,99
1	3937 4-p Victoria 3,295 5-p Brougham 3983 2-p Std. Coupe 3,295 PEERLESS	\$1,295	"6-54	•	W. B.)	4- 5-	p Speedster	2,99
п	4065 5-p Sedan 3,370 "6-72"	3.)		-p Roadster -p Tourer	\$2,385 1,985	5-	p Sedan	2,99
п	4080 5-p Spec. Brougham 3,395 3175 5-p Touring	2,295	4	-p Sport -p Tourer	2,285 2,285	2-		2,99
	4243 7-p Spec. Sedan 3,470 3500 5-p Sedan	2,395 IR N	3	3-p Cabriolet 5-p Sedan	2,750 2,950	VELIE	"60"	***
	4100 5-p Sedan Lim. 3,900 3275 2-p Roadster	\$2,195		75-E" (128 in. W			p Club Phaeto	n 1,4
	MOON 3700 7-p Sedan	2,595 1e 2,695		"Custom Built" 2-p Speedster	\$3,485	5	-p Coupe -p Sedan -p Royal Seda	1,4 1,4 1,7
5	Series "A"	Sedan 2,795 Sedan 2,995		3-p Sport 4-p 'l'ourer	3,285 2,985	3005 5	-p Brougham De Luxe Sed	1,4
5	2720 5-p Cab. Roadster 1,545 "6-80"		**8	-88" (138 in. W	. B.) \$2,750		SAINTE CLAIR	
5 15 35	2710 5-p Coach 1,295 5-p Phaeton 2710 5-p DeL. Sedan 2d. 1,495 5-p Phaeton	\$1,395 r 1,495	5	4-p Roadster 5-p Sport	2,750 2,495		"B-68" (127 in. W. B.)
95 85	2850 5-p Std. Sedan 4d. 1,445 2950 5-p Sedan 2860 5-p DeL. Sedan 4d. 1,595 3140 5-p Std Sed	\$1,495 lan 1,595		5-p Tourer 7-p Tourer 2-p Speedster	2,585 2,985	3500 7 3520 5	-p Phaeton 5-p Sedan	\$2,8 3,8
95 85	London "8-69"	. B.)		2-p Speedster 5-p Sedan 3-p Cabriolet	1,995 2,950		-p Sedan	3,9
85 85	3290 7-p Touring 1,985 Roadste	3,49	5	5-p Spec. Seda 7-p Sedan (136	5 in.		"C-68" (127 in. W. B.)
85	NASH 7-p Sedan	3,598 imousine	0	W. B.) 5-p Brougham	3,285		4-p Roadster 4-p Gray G. T	\$3, rav. 3,
95	2870 2-p Roadster \$1,115 PIERCE-ARROW		ROLL	S-ROYCE		3600	5-p Sedan "D-68"	4,
95	3030 2-p Business Coupe 1,165 4350 2-p Runabo	5,25		Chassis	tt		(127 in. W. B	
245 ppl.	3170 5-p Sedan 1,315 4590 7-p Touring	5,25 6,80	00 list pr	anufacturers do	not quote		4-p Gray G. Ti 4-p Roadster	3,
000	"Advanced" 4800 4-p Sedan	6,90 7,00	00 STAN	LEY "262"		3625 3800	4-p Cab. Road 5-p Std. Sedar	1 3
000	(121 in. W. B.) 3390 4-p Roadster 1,475 4750 4-p Coupe Brough	am 0,80	3600	5-p Phaeton	\$2,650 3,400	3825 3820	7-p Sedan 5-p Brougham	4 4 4
608	3550 5-p Sedan 2d. 1,425 5060 7-p Enclose	ed Lim. 7,00	00	5-p Sedan	5,100	3710 3875	5-p Spec. Seda 7-p Enc. Lime	usine 4
800	"Advanced" 4780 7-p French (127 in. W. B.) 4730 6-p Landar		00	2-p Roadster	\$52	6	(127 in. W. I	3.)
,100	3480 7-p Touring \$1,490 3205 2-p Roadst		95	5-p Touring 2-p Coupster	52 61	3650 0 3410	7-p Phaeton 4-p Roadster 4-p Gray G.	2
	3750 5-p Coupe 4d. 1,990 3260 4-p Phaeto 3830 7-p Sedan 2,090 3385 7-p Phaeto		95	5-p Coach 5-p Sedan 4d			5-p Sedan 5-p Vogue Se	dan 3
,460 ,460	OAKLAND 3430 5-p Coach	3,2	50 350	Standard "6		3770	5-p Vogue Bi 7-p Sedan	oug.
0,050	2425 2-p Roadster \$975 Lim-C	oach 3,4	150 320	5-p Touring 2-p Coupster		5	'T-6" (127 in. V	v. B.)
0.050	2600 4-p Sp. Roadster 1,175 3335 4-p Coupe	3,6	895	2-p Coupe 5-p Coach 5-p Landau	88	3675 3580	5-p Traveler 4-p Roadster	.dster
0,000	2615 3-p Landau Coupe 1,125 3560 7-p Sedan 2765 5-p Sedan 1,195 2615 7-p Enc.	3,9	95	5-p Landau s		3750 3900	4-p Cab. Ros 5-p Sedan	idster
2,150	2885 5-p Landau Sedan 1,295 PONTIAC		STE	"B-4"	41 7		7-p Sedan 7-p Limousin 5-p Brougha	е
2,265	OLDSMOBILE (110 in. v	\$	825 3475 825 3475	4-p Touring 5-p Touring	\$1,5 1,5 1,7	0 5 1	5-p Spec. Sec	lan
2,285	4-p DeL. Roadster 975 REO		3495 3650	4-p Coupe	1,9 2,0	95 WILL	YS-KNIGHT "66"	
5,500 5,900	7445 5-p DeL. Touring 980 "T-6"	ster \$1.	,665 3725	5-p Brougha		3323	2-p Roadster	
7,30	2-n De Luye Coune 990 east 2-n Coune		,395 ,495 ,565 3610	"75"			7-p Touring 5-p Coupe Se	edan m
7,49	00 2635 5-p Sedan 1,025 3565 2-p Sedan	n 4d. 1,	,565 3590 745 3550	5-p Touring 2-p Sport C	oune 2.1	85 3672	5-p Brougha 4-p Coupe	m
7,50	00 OVERLAND REVERE		3875	4-p Coupe 5-p Sedan	2,4	3604 3686 75 3822	5-p Sedan 7-p Sedan	
***	(100 in. W. B.) 3900 2-p Sp. 1	Roadster \$2	3780 3,750	95"			"70"	
\$2,6 2,9 2,6	550 1919 5-p Touring \$495 3975 4-p Speed 900 2205 5-p Sedan De Luxe 695 4050 5-p Tour	ing 2	377 3,800 377			750 2846 395 3050	5-p Touring 5-p Sedan	
2,6 2,7	650 2202 5-p Std. Sedan 2d. 595 4300 5-p Seda	3	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					

Mechanical Specifications of Current Passenger Car Models

				ane			cts
	ABBREVIATIONS— NAMES OF MFRS. OF STOCK PARTS	nt ots	<u>.</u>	Lav-Iscoc-vevine Lav-Isconing M&E-Jeconing Max-Marvelant & Evane Max-Marvelant Mac-Mechanics Machine Murr-Muncie Nor-North East Nor-Northway Pet-Peters	8	Drive	Shaft U.M.—Universal Machine U.P.—Universal Products W.G.—Warner Gear W.A.—Warner W.M.—Warner W.M.—Willys-Morrow Wis-Wisconsin Zen-Zent Zen-Zent
	OF N	-Atwaster-Kent -Adams -Adams -Adams -Adams -Ander -Ansig -Borg & Beek -Bown-lip -Basic cups -Basic cups -Carter -Carter -CAF Products -CAF CAS Products -CAF CAS Products -CAS Products	olumbia ampbell awapel DeJon DeJon Destroit of Oluration Dynato aton Gemmer Itis Hoosier as on Asson	ing chant el anics anics nie East way	ord rry er I Mal	en en real	Shaft niversal niversal arner Grarner arner Willys-M
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	NAN	A-K—Atwater-Kent A-L—Auto-Lite Ada—Adams A—Alemite An—Ansted Ans—Ansted Ans—Ansted R&B—Borg & Beek RB—Ball & Ball RB—Ball & Ball RB—Bassie cupps RB—Bowen-Products Car—Carter CAS—Products CIC—Climax Cin—Climax	Col-Columbia Da-Dawson Da-Dawson De-D-Columbia	Mar I	Roc. Nacyted Sa. Saleshury Sch. Sabelle Saleshury Sch. Schelle Special Ma Special Ma Spirite Spice Spirited Spi	rhe— i memer Fil—Tillotson Fim—Timken U-D—Universal Drive	U-M-U-P-Wes-Wes-Ze-Ze-Ze-Ze-Ze-Ze-Ze-Ze-Ze-Ze-Ze-Ze-Ze-
-	Type and Make	LBS TEST TEST TEST TEST TEST TEST TEST TE	Pr-Ze. Com-Be. Com-Be. Com-Be. Do Com-Be. Do Com-Be. Do Com-Be. Do Com-Be. Do Com-Be. Dr. Al. Do Com-Be. Al. Dr. Al. L. Al. L. Dr. A	Ow	Pr-Al. S Pr-Al. S Pr-Ba. S Pr-Al. S Pr-Da. S Pr-Da. S Pr-Da. S Pr-Al. S		2#
	Chassis Lubrication Type and Make	Pr-AI. Pr-Ze. Pr-Ze. Oc-Ju. Pr-Dot Pr-Ze. Pr-Ze. Pr-Ze. Pr-Sa. Cm-Bo	Pr-Ze. Gra-Bo. Cm-Bo. Cm-Bo. Cm-Bo. Pr-Al. Pr-Al. Pr-Ze. Pr-Ze. Pr-Ze. Pr-Al. S. Pr-Al. S. Pr-Al. S. Pr-Al. S. Pr-Al. S. Pr-Al. Pr-Al. Pr-Al. Pr-Al. Cm-Bo.	8 0w Pr-Ze. Pr-Ze. Pr-Ze. Pr-Al. Pr-Al. Pr-Al.	Pr-Al. Pr-Da. Pr-Da. Pr-Da. Pr-Da. Pr-Da. Pr-Da. Pr-Da. Pr-Da.	Pr-Ze	mshe e
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AL	Starter Make	A-LF Remy. F Remy. F Remy. P Remy. P Beeny. P Delco. I Delco. I Delco. I Delco. I Delco. I Delco. I Delco. I Besch. F Remy. P	Remy, P Remy, P Boen, P Bosch, P Delco, D Delco, D Delco, D Delco, P Delco,	Bosch. L. PA-LP A-LP DeJoP DoJoP DoJoP DoynP Remy. P Remy. P Remy. P A-LP	Delco. Delco. Delco. Delco. Delco. Delco. Delco. Permy. Pe	Wes F	of He
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	Bore and Stroke						CI—Cast ion Cm—Chain; Overhead shaft Co—Chain; Overhead shaft Cu—Cil and grease cups D—Mittiple disk P—Full cliptic P—Full cliptic P—Full cliptic P—Full cliptic
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A 1--Aluminum
B--Semi-steen
Semi-steen
external. four wheels
EQC--Bevel Gear Overhead shaft
Ch.-Chain

Sep—Separate
Sp—Spissh (inbrication) W.
Sp—Spins dear (cambit the drive) Special make
W.
Stan—Shecial make
W.
T.—Thermosyphon
Zer
Varies
W.
Warn—Varies
Yaries

L—L head

M—Metal

N—Metal

N—None

N—Platform (rear springs)

O—Optional (brakes)

O—Special type (rear springs)

OG—On one

OG—On one

OG—On one

OW—Onl cups

Fr—Single plate

Fr—Pressure gen

G—Head and side
Gr—Grease cups
H—Horizontal (valves)
H—Horizontal (valves)
H—Horizontal (valves)
H—Helical gear
I—In held gear
I—Tottegral
I-F—Internal four wheels
I-R—Internal rear wheels
I-R—Internal rear wheels
I-R—Cone-quarter elliptic

CI—Cast ion
Cm—Central magazine
CO—Chain; Overhead shaft
CO—Oli and grease cups
D—Multiple disk
E—Full elliptic
E—Full elliptic
E—Full elliptic
E—Rexternal lour wheels
E-R—External rear wheels
F-R—External rear wheels
F-R—External rear wheels
F-R—External rear wheels



Success

The demand for the new, 90 degree, eight-cylinder Cadillac is taxing the capacities of this great plant.

As if by universal agreement, new thousands are turning to the brilliant new Cadillac for the certainty that it alone offers.

Cadillac is entering upon an era of growth and expansion that will surpass any previous period.

CADILLAC MOTOR CAR COMPANY, DETROIT
DIVISION OF GENERAL MOTORS CORPORATION

New 90 Degree

CADILLAC

Mechanical Specifications of Current Passenger Car Models—Continued (From page)

page

(This list comprises cars distributed on a national basis)

	ABBREVIATIONS— NAMES OF MFRS. OF STOCK PARTS	A-K	Al—Alemite Borg & Beck	B-L-Brown-Lipe	Bi-Bijur Bo-Bowen Products	Cle—Cleveland	Cil—Cilmax Con—Continental Col—Columbia	Cpl—Campbell DeJo—DeJon	Det - I	Dour	Eat—Eaton Fli—Flint Ful—Fuller	Gdr-Goodrich Gem-Gemmer		L.N- Leece-Neville Lav- Lavine	. Lyc—Lycoming . M&E—Merchant & Evan- . Mar—Marvel	Me-Meyer Mec-Mechanics Machine	22	Nor—Northway Pot — Peters	R-D-Rochester- Duesenberg Ray-Rayfield	Roc-Rockford Sa-Saal Sel-Suichura	Sch—Schebler Sne—Snead	Spi-	Stl—Sterling Str—Stromberg Thr—Tyermoid Tril—Tyllotson	U.D—Universal Drive	U-M - Universal Mach m U-P - Universal Products W-G - Marner Gear	Wag — Wagner War — Warner Wat - Watford	Wes—Westinghouse W-M—Willys-Morrow Wis—Wisconsin Zen—Zenkis
_u	Chassis Lubricatio	Cm-Bo	Ow	m-Bo	Pr-Al.	r-Al.	Pr-Dot OG: Pr-Al.	m Bij	CmBij Pr-Al.	Pr-Al.	Pr-Ze Pr-Ze	Pr-Ze	Pr-Al.	Pr-Al.	Pr-Al. Pr-Al.	P-AL.	Pr	Pr-AI.	Pr-AI. Pr-AI. Pr-AI.			CmMe Pr-Do. Pr-Al.	Pr-All Pr-All			haf	2
	Rear Springs—Ty	0-45 C				S-537%	S-50% O-25 S-521%		S-56.	S-56 I	S-5617 S-5617	S-54.	8.60. % 8.60. % 8.57. %	S-59.	V-55% V-55% S-52.		S-58 I	S-5334 P	V-50. P V-50. P V-50. P		: :	S.555	S-58 P		(lubrication	ar (camshaf) I make	The Standard The Thend The Thermosyphon V Cantilever V Cantilever X Starove varies
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bus	Universals—Type	. m-Spi.	88	Cle. m-Spi	n-Spi	m-Own.	n-Own	m-Mec.	m-Mec.	m-U-D.	B B Spi	m-Own (m-Own	m-Spi	m-Mec.	f-M&E f-M&E f-U-M	f-U-M.	f-Thr. m-Spi.	m-Spi.			m-Spi.	m-Mec m-Cle	m-Spi		ta of	rod bea	ecting rods and cam ngs Splash with pressure Pump uarrer elliptic
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	Number of Cyls., Bore and Stroke	6-334x51/8	6-33/8x5	6-33/xx41/2	6-3/8x4/ 6-3/6x5	6-3 /8x4 // 6-2 // 8x4 3/4	6-234x434 4-312x4 6-3 x4	6-31/2x5	8-33/8x5 6-31/x5	0-31/2x5 6-31/4x45/8	8-3/4 x5 6-4 x5/2 6-3:/x5	6-31/4x3% 6-31/ex5	4-43/8x6 6-33/4x5 6-31/4x43/	3-314x434	6-3/2x5/4 6-3/8x4/4	8-3x4½ 6-4½x4¾	262 2-4 x5 Spec. 4-33/8x41/4	.Spec. 6-23/x 43/	Kni 6-3,4x5 Kni 6-3,4x5 Kni 6-3,7x5	ER 6-3%x41/2	6-37/8x5	8-31-x4/2 6-31-x4/8 6-31-x4/8 6-3/4x5/2	8-314x4 6-314x434 6-214x434	0		a rine d shaft se cups	II—Multipe disk E—Full elliptic E-F — External four wheels E-R — External rear wheels E-T — External rear wheels E-T — Former of transmission
	Make and Model	Own74		TV 8R	261	280	Own30 Own91 Own93	9	Own8 Own	80	 	T6	MonM Con6J Own	. B-8	Con. 7U	40-50	Own 262 Con Spec.	Con. Spec.	OwnKni 6 OwnKni 6 OwnKni 6	Own.ER	EP	Own52 Own52	Own. BC68 Own 66 Own 70		fron	ral mag	illiptic ternal fo ternal r ternal r ternal r
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	Wheel Base'	136	127	141%	1113 3	1121/2	110%	6-133	136-143 3 125 3		138		131 32 32 117	1211/2 33	118-138 128 32 115	143/2 33	122 32 103 30	107	119 121 33 130			131 131 118 127 328 328 328 328 328 328 328 328 328 328	127 32 126 32 1131/2 30				
	MAKE AND MODEL	Marmon74	St.	London	Series A Advanced	Special "6"	Oldsmobile 30 Overland 93	9	Packard	6-72	Pierce Arrow 33		Revere Revere Rickenhacker	8-8	Roamer	Rolls RoyceSilver Ghost	Stanley262	Star		: 0		Stutz. AA Velie. 60 Wills Ste. Claire. 76, W6	Wills Ste. Claire B&C68 Willys Knight	1	KEY TO SYMBOLS	*At extra cost	A.—Air. A.—Air. A.—Air. B.—Beni-steel B-F.—Both internal and R-F.—Roth Court. A.—Air.



This advertisement appears in the Saturday Evening Post, Literary Digest, Farm Journal, Successful Farming, Capper's Farmer, Progressive Farmer and others.

r Age



'The Gauge Room where the precision-measuring instruments are checked and the comments of the checked and the very heart of the factory—bere the accuracy of manufactory—ber alone is governed. The pricture was drawn from life." From the General Motors Insti-

OUR RIGID INSPECTION IS YOUR PROTECTION

Back of the growing preference for Oldsmobile, stands performance. Back of that performance, stands quality. Back of that quality, stands a manufacturing policy that does not tolerate the slightest variation from accuracy.

One inspector to every seven workers, is the ratio in the Oldsmobile factory. Every material is tested to the highest standards, every measurement verified with the greatest precision, every driving demand anticipated and provided for.

You can depend upon a car built like that! You can recognize the difference the moment you take the wheel. The more you drive the Oldsmobile the more you will value these exacting standards. For they guard that fine performance steadily, as months and miles roll by.

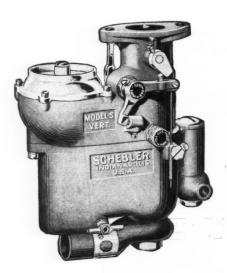
We have secured a supply of Francis Birtels' interesting book
"Conquering the Australian Bush." If you would like a complimentary copy address Olds Motor Works, Linsing, Mich.



The car illustrated is the De Lua Coach, priced \$1040, at Lansing

OLD SMOBILE

Precision manufacture under rigid inspection assures owner satisfaction . . . And to that satisfaction we frankly attribute a large proportion of Oldsmobile's increased sales—and increased dealer profits.



Exact Carburetion a big dealer asset~

THE Schebler Model "S" Carburetor is a great practical asset to the automobile dealer because it improves all round performance so much, and can be readily and convincingly demonstrated.

At abnormally cold temperatures engines equipped with Schebler Model "S" Carburetors start readily, and can be operated immediately upon starting with good power and even firing. This is a striking demonstration for any car.

Schebler equipped cars accelerate much more rapidly, and gear shifting is greatly reduced. Schebler equipped cars idle down to slower speeds, and idle smoothly. Schebler equipped cars develop more power. They will take steeper hills on high, and will attain greater maximum speed.

Gasoline economy with this better performance will be just as good or better than with ordinary carburetion adjusted solely for economy, when other performance characteristics are decidedly bad.

Automotive equipment dealers can build a big and profitable business on the superior performance the Schebler Model "S" Carburetor gives by selling Schebler guaranteed Package Outfits for replacements. Write us and find out whether this Valuable Schebler Franchica is open for your territory.

WHEELER-SCHEBLER CARBURETOR COMPANY

us and find out whether this Valuable Schebler Franchise is open for your territory.

Schebler's Silver Jubilee Year

INDIANAPOLIS

Established 1901

SCHEBLER
The World's CARBURETORS

A Test Proves it

Gry one Schebler Model "S" Carburetor and find out what it will do for you. The superior performance it gives in practical use is even more striking than the recognized superiority of the Schebler Model "S" in laboratory tests.

26

VY

GATES HOSE

"The Standardized Radiator Hose"



The yardstick printed on Gates Vulco Hose is saving time for more than 100,000 dealers all over the U. S.

> Made by the World's Largest Manufacturers of Fan Belts.

Upward Sweep of reaches New High Mark reaches New High Mark All Year Coupe Roadster Phenomenal Success.

Additional impetus has been given the vigorous growth of Kissel sales by the introduction of the new All-Year Coupe Roadster!

To meet the tremendous countrywide demand that this car has created, Kissel has put into force the highest production schedule ever established on any Kissel model.

We will gladly send complete information concerning this car to any dealers who are interested.

g g

KISSEL

core

1926

KISSEL Sales



Two Cars in One \$1695



Body by Kissel

In this model, which becomes either Coupe or Roadster as the top is raised or lowered, Kissel presents the ultimate achievement in personal motor car utility.

As a long, low, dashing Roadster, it is perfectly suited to every demand made by the ever-extending outdoor season.

Firmly fitted and admirably built to all the requirements of the Coupe, it is unequaled

as a personal vehicle for the business or professional man or salesman. And it is readily changed in seven seconds, whenever or wherever it may be needed.

Adapted to all uses of both models, the Kissel All-Year Coupe Roadster offers an exceptional value in either the Six Cylinder at \$1695 or the Straight Eight at \$2095, standard equipped.

KISSEL MOTOR CAR COMPANY, HARTFORD, WISCONSIN

CUSTOM D BUILT

BROWN-LIPE GEAR DISTRIBUTORS

CALIFORNIA

Fresno—Colyear Motor Sales Co., 1236 Fulton St.
Long Beach—Superior Automotive Equipment, Inc.,
2345 E. Anaheim St.
Los Angeles—Colyear Motor Sales Co., 1222-28 So. Hill St.
Oakland—Colyear Motor Sales Co., 2315 Broadway.
San Diego—Standard Motor Parts Co., 2nd and "B" Sts.
San Francisco—Colyear Motor Sales Co., 1247 Van Ness

COLORADO

Denver-Gall Auto Specialty Co., 1322 Lincoln St.

CONNECTICUT

New Haven-Gorey Automotive Parts Co., 67 College St.

DISTRICT OF COLUMBIA

Washington-Quaker City Motor Parts Co., 2020 14th St., N. W.

FLORIDA Miami-Miller Motor Parts Co., 2035 N. Miami Ave.

GEORGIA

Atlanta-Motor Parts Corporation, 253-255 Ivy St.

ILLINOIS ILLINOIS
Chicago—North Side Unit Parts Co., 5342 Broadway.
South Side Unit Parts, 6515 Cottage Grove Ave.
Standard Unit Parts Corp., 1712 So. Michigan Ave.
West Side Unit Parts Co., 3941 W. Washington Blvd.
Alton—Alton Motor Parts Co.
Belleville—Knab Motor Co.
Carbondale—Meyers Garage
E. St. Louis—Hudson Auro Supply, 6th and State Sts.
Harrisburg—Rogers Auto Supply
Herrin—Bruce Auto Supply
Mt. Vernon—Automotive Service
Pana—Kuhn Bros.

-Kuhn Bros

Peoria—Peoria Auto Parts Co., 817 So. Adams St. Springfield—Armstrong Auto Parts

INDIANA

Ft. Wayne—Main Auto Supply Co., 215 West Main St. Indianapolis—Central Motor Parts Co., 409 N. Capitol Ave.

IOWA

Davenport-Horst & Wilkinson Co. Des Moines-Standard Motor Paris Co., 1310 Grand Ave.

KANSAS

Wichita—Goodin Motor Service Co., 333 S. Lawrence Ave. Winfield—L. Moore Implement Co., 1107 S. Main St. KENTUCKY

Bowling Green—Economy Car Parts Co. Lexington—The O. W. Murphy Co. Louisville—Edinger Motor Parts Co., 205 Broadway, E.

MAINE

Portland-J. E. Goold & Co., 201 Federal St.

MARYLAND

Baltimore-Quaker City Motor Parts Co., 1213 Maryland Ave. Frederick-E. B. Shipley, 105 W. Patrick St.

MASSACHUSETTS

Boston—Campbell Motor Parts Corp., 709 Beacon St. Fitchburg—Christie & Thomson, 542 Main St. Haverhill—J. O. Ellison, Middlesex St. New Bedford—Shuster Co., 1519 Purchase St. Springfield—The Parmenter Co., 680 Main St. Worcester—Christie & Thomson, 216 Harding St.

MICHIGAN

Bay City—Northern Auto Supply Co., 911 No. Water St. Benton Harbor—Vans Auto Parts and Gears
Detroit—Automotive Parts Corp. of Mich., 6150 2nd Blvd.
Flint—Flint Automotive Sales, 504 No. Saginaw. St.
Grand Rapids—Automotive Parts Corp., of Mich., 21
Lagrave Ave., S. E.
Kalamazoo—Auto Parts Distributing Co., 145 W. Kalamazoo—Auto Parts

Muskegon-Motor Rebuilding & Parts Co., 941 Terrace St. Saginaw-Northern Auto Supply, 817 E. Genesee Ave.

MINNESOTA

Minneapolis-Stand. Unit Parts Corp., 1020 La Salle Ave.

MISSOURI

MISSOURI
Cape Giradeau—Auto Tire and Parts Co.
Jefferson City—John H. Rodeman
Joplin—Lewis Machine Co., Second and Joplin Sts.
Kansas City—General Auto Parts Co., 1621 Grand Ave.
Kirkville—J. Burdman
Macon—J. D. Bowman
Moberly—Goddard White Co.
Poplar Bluff—C. & A. Machine Co.
St. Louis—Authorized Motor Parts Corp., 3150 Locust St.

NORTH CAROLINA

Raleigh-Motor Bearings and Parts Co

NEW JERSEY
Atlantic City—Cuskaden Auto Supply Co., 3017 Atlan-

tic Ave.
Newark—Gorey Automotive Parts Co., 24 Williams St.
Trenton—J. Harry Hearnen, Front and Warren Sts.
Ufert Auto Parts.

NEW YORK

NEW YORK
Albany—Gorey Automotive Parts Co., 156 Central Ave.
Binghamton—Rose Unit Parts Corp., 29 Susquehanna St.
Brooklyn—Gorey Automotive Parts Co., 1369 Bedford Ave.
Buffalo—Unit Parts Corporation, 1487 Main St.
Lockport—Lockport Cylinder Grinding Co.
Medina—Medina Cylinder Regrinding Co.
New York—Gorey Automotive Parts Co., 354-6-8 W.
Soth St.

Soth St. Niagara Falls—James Mullane, 10th St. and Buffalo Ave. Olean—Cunningham & Moore, 236 No. Union St. Rochester—Genuine Parts Sales Inc., 283 Andrews St. Stapelton—Wagner Auto Parts.
Syracuse—Harry T. Allen, Inc., 518 So. Clinton St. Utica—Stiefvater Electric Co., 320 Lafayette St. Watertown—Garland City Parts Corp., 250 Factory St.

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Akron—The Hardware & Supply Co., 475-535 S. High St.,
Ashrabula—Sanborn Motor Equipment Co., Elm and
Center Sts.
Bellefontaine—Peoples Tire and Supply Co.
Canton—Canton Auto Gear and Parts Co., 402 2nd St., S.E.

Celina—Cron Tire & Supply Co. Chillicothe—Hodgdon & Grove Auto Parts Co., 94

Celina—Cron Tire & Supply Co.
Chillicothe—Hodgdon & Grove Auto Parts Co., 94
Water St.
Cincinnati—The Patterson Parts Co., 118 E. 8th St.
Cincinnati—The Patterson Parts Co., of Ohio, 1854
E. 23rd St., at Chester Ave.
Columbus—Automotive Parts Co., of Ohio, 218 E. Gay St.
Dayton—Huber Fireproof Garage Co., 120 W. 4th St.
Galion—Plack Auto Supply Co.
Hamilton—West Side Motor Company.
Kenton—The Bonnell Auto Supply Co.
Lima—The Siferd Hossellman Co.
Lima—The Siferd Hossellman Co.
Logan—The Ferd Hack Auto Supply Co.
Mansfield—Fox—The Tire Man.
Marion—Lawrence Auto Supply Co.
Marysville—Marysville Auto Parts Co.
Mt. Vernon—Vine St. Motor Supply Co., 631 Gallia St.
Ravenna—H. A. Clark Accessory Store, 415 W. Main St.
Sidney—The Sideny Auto Parts Co.
Springfield—H. G. Root Co., 116-118 Washington Pl.
Steubenville—Mayesh Hardware & Auto Parts Co., 230
No. 5th St.
Toledo—Automotive Parts Corp. of Mich., 1013 Jeffer-

Steubenville—Mayers Hardware & Auto Parts Co., 230 No. 5th St.
Toledo—Automotive Parts Corp. of Mich., 1013 Jefferson Ave.
Troy—Miami Auto Parts Co.

Urbana—Harmstead & Holding.
Van Wert—Van Wert Motor Supply Co.
Wapakoneta—Rufus B. Wahrer.
Warren—Warren Cylinder Grinding Co.
Washington—C. H. Dunn Auto Supply Co.
Youngstown—Auto Gear & Parts Co., 143 E. Woodland Ave

OKLAHOMA

Oklahoma City—Brittain Bros., Inc., 27 West 3rd St. Ponca City—Nickles & Gentry, 201 S. First St.

Portland—Colyear Motor Sales Co., 8th and Couch Sts. Salem—W. E. Burns, High St., at Ferry.

PENNSYLVANIA

Allentown—Quaker City Motor Parts Co., 45 S. Sixth St. Altoona—Genuine Standard Motor Parts Co., 2400 Beale

Ave. ston—Standard Auto Parts Co., 1810 Freemansburg Ave. Ave.

Ave.

Aston—Standard Auto Parts Co., 1810 Freemansburg Ave.

Harrisburg—Quaker City Motor Parts Co., 4 So. 11th St.

Johnstown—Johnstown Automobile Co., 101 Main St.

Lancaster—Rosey Auto Parts Co., 40 N. Market St.

New Castle—Elliott & Waddinston, 19 No. Jefferson St.

Philadelphia—Quaker City Motor Parts Co., 2512 N.

Broad St.

Pittsburgh—Superior Motor Parts Co., 5614 Penn Ave.

Pottswille—George M. Beale, 204 S. Centre St.

Reading—Reading Auto Parts Station, 611 Franklin St.

Scranton—D. G. Nicholas Co., 533 Wyoning Ave.

Shamokin—Shamokin Auto Parts Co., 711 N. Rock St.

Uniontown—Craig Motor Service Co., 286 E. Fayette St.

Warren—H. J. Onions Machine Co.

Washington—Washington Auto Parts Co., Jefferson & Chestnut Sts.

Wilkes Barre—Kirshner Motor Parts Co., 137 E. Fourth St.

York—Piperberg Auto Parts Co., 355 West Market St.

RHODE ISLAND

RHODE ISLAND

Providence-Rhode Island Motor Parts, 314 Dean St.

SOUTH CAROLINA

Columbia-Whitton Genuine Parts Co.

TENNESSEE

Knoxville—Service Auto Parts Co. Memphis—Standardized Parts Corp., 360 Monroe Ave.

TEXAS

TEXAS

Beaumont—Simmonds Motor & Machine Co.
Corsicana—Fred Allison Motors Co.
Dallas—Motor Parts Depot, Inc., 1108 S. Ervay St.
El Paso—Car Parts Depot, Inc., 810 Texas St.
Ft. Worth—Motor Parts Station, 1505 Commerce St.
Houston—Motor Parts Depot, 1021 Lamar St.
San Antonio—Car Parts Depot, Inc., 523 No. Alamo St.
Waco—Lightfoot Auto Parts Co.
Wichita Falls—Gaines Motor Sales Co.

VIRGINIA

Lynchburg—Southern Parts & Bearings Co., 617 Main St. Norfolk—Standard Parts Corp., 139 Olney Road. Richmond—Standard Parts Corp., 1806 W. Broad St. Roanoke—Roanoke Standard Parts Corp., 229 Franklin Road.

Bellingham—Automotive Parts Co., 1319 Elk St. Seattle—Colyear Motor Sales Co., 919 E. Pine St. Spokane—Colyear Motor Sales Co., 1st Ave and Jeffer-

Tacoma—Ferguson Auto Supply Co., 723 Broadway. Wenatchee—Dennis Auto Co., Inc., 132 N. Wenatchee

Yakima-The Lowe Tire Co., 418 E. Yakima Ave.

WEST VIRGINIA

Fairmont—Butcher Auto Parts Co., 405 Cleveland Ave. Huntington—Huntington Auto Supply, 938 3rd Ave. Parkersburg—The A. E. Supply Co., 520 Seventh St. Wheeling—Genuine Parts Co., 903 Market St.

WISCONSIN

Milwaukee-Stand. Unit Parts Corp., 482 Milwaukee St.

CANADA

ALBERTA

Calgary-Vancouver Parts Co., Ltd., 708-10 4th St., West.

BRITISH COLUMBIA

Vancouver-Vancouver Parts Co., Ltd., 1260 Granville St.

This Trade Mark On All

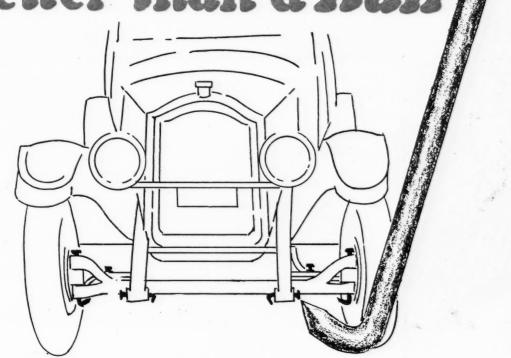


Genuine Major Parts

BROWN-LIPE GEAR Syracuse. n. u 1926

a Worn Bolt is no better than a Mail

You wouldn't use a nail as a King Bolt, Spring Bolt, or Tie Rod Bolt—and yet, a badly worn bolt is no better than a nail, insofar as safety, or wobbling, rattling and squeaking is concerned.



Inefficient lubrication at the point of bearing between the bolt and bushing results in a friction of metal against metal which soon causes the bolt and bushing to wear, leaving a clearance opposite the point of bearing. The greater the wear, the greater the clearance and the more the wobble, rattle and squeak as well as danger to the driver.

For the sake of safety and satisfaction to the car owner, as well as profit to yourself, don't attempt to cure a badly worn bolt with a shot of grease or the twist of a wrench.

Remember, it's wear that makes the rattle and wobble, and chassis bolt and bushing RENEWAL is the only cure.

There's a profitable story in connection with Chassis bolt and bushing renewal. That story is interestingly told in our Bulletins entitled, "The Tale of a Bolt." These Bulletins are sent free to Service Men and Mechanics who request them. If you aren't already getting them, write us, giving your Jobber's name.

THE FOSTORIA SCREW CO.

304 Blue Print Ave., Fostoria, Ohio

Export Office, 30 Water St., New York City
Cable Address, "Widbloco"
Codes Used: Bentley, A. B. C. 5th Edn. Western Union



Blue Print Bolts and Bushings are made to the blue print specifications of car manufacturers. That's why they are a continuation of original equipment, not replacement parts. Ask your Jobber for the Blue Print Line. If he hasn't it write direct to us giving Jobber's name.

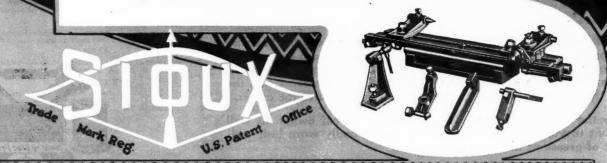
King Bolts, Spring Bolts, Tie Rod Bolts and Bushings





FOR
SIOUX VALVE FACE
GRINDING MACHINE

Net Price of Attachment complete \$50.00 No. 680



HERE'S the very tool you've been waiting for—another Sioux contribution to shop economy and efficiency. A practical and simple tool that any mechanic can use, no guess work—the adjustments and gauge insure perfect grinding. With this attachment it is no longer necessary to buy a whole new set of blades when one breaks. Capacity up to $2\frac{1}{2}$ diameter and 14 in length. Can be used only with the Sioux Valve Face Grinding Machine.

Your Jobber Sells It

ALBERTSON & CO.

SIOUX CITY, IA.





Gives the Autoist Double Protection Against Theft

by securely locking the ignition and automatically sounding the horn if the car is tampered with.

Type A \$5.00

Ford Chevrolet 1921-23 Essex 1923-26

Type B \$7.00

Chevrolet 1924-26 Essex 1921-23 Hudson Dodge Buick Chrysler Etc. The usual car thief is a joy-rider, a stick-up man or a thief who wants the use of a car for a short time.

When the LIKUM LOCK is tampered with, it blows the horn and keeps it blowing. The thief is frightened away. If the horn is removed or stopped by cutting the wires, the ignition is still locked. Only the owner's key to the Likum Lock will unlock the ignition.

The LIKUM LOCK baffles the meanest and most common thieves. Installation is simple and inexpensive on every make of car.

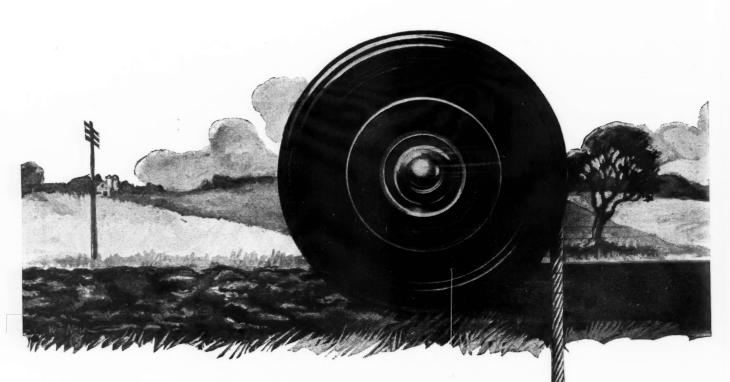
There is no lock like the LIKUM at twice the price.

Sold through the established jobbing and wholesale trade.

Manufactured by

Loomis-Knight-Miller, Inc., Springfield, Massachusetts

Export Department-Jordan B. Parsons and Associates, Woolworth Bldg., New York City



The new WEED Le velizer

After years of laboratory research and most exacting road tests, the manufacturers of WEED Chains and Bumpers have launched this new product. The LEVELIZER is not merely "another shock absorber," hurriedly gotten out to meet the growing demand for rebound control devices, but a well-tried device which does all its name implies—it "Levels the road as you go"—it levelizes the car body. Keeps it on an even keel.

There is a greater demand than ever for a rebound control which is mechanically right, one without any "bugs" in it. You only have to try a set on your own car to be convinced that a new riding comfort has been achieved in the WEED Levelizer. You will sense a new feeling—that soft flexible ride without the violent up-throw—and without any of the short jabs transmitted by faulty shock absorbing action.



It will be a leader at once

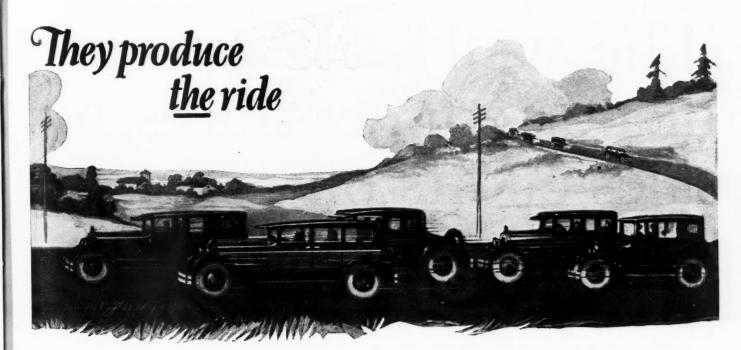
WEED Levelizers will be well advertised to the public, starting with a two page spread in the Saturday Evening Post of April 17.

If you haven't already stocked WEED Levelizers, be sure to learn about them. The price is right. Write for descriptive literature and price lists.

Made and recommended by the makers of WEED CHAINS and WEED BUMPERS

926





Levels the road as you go

Flexible and smooth regulation of levelizing force is attained in the WEED Levelizer by the floating drum principle—a floating drum which is pulled against a friction fabric as it is turned by the steel cable anchored to the axle. WEED Levelizers act only on the upthrow of the car body, thereby permitting free action of car-springs. Their levelizing

action is proportioned throughout the rebound to actual requirements.

WEED Levelizers operate efficiently on all cars, with all types of spring suspensions and all tires. They are made in two models, for heavy and light weight cars. Remember—it is automatic in operation.



Too simple to get out of order

Only three units, the housing, reel and rewinding springs. No bearings to squeak, nothing to oil or grease, no fussy adjustments. Just a simple floating reel actuated against its housing by a steel cable. It has no straps to fray and rot.



for all makes of cars

Easily applied to all makes of cars. Attachments fit all cars whose frames are drilled for shock absorbers. Special attachments for cars that require them.

AMERICAN CHAIN COMPANY, Incorporated ~

Bridgeport, Connecticut

In Canada: Dominion Chain Company, Limited, Niagara Falls, Ont.

District Sales Offices: Boston Chicago New York Philadelphia Pittsburgh San Francisco

The well dealer concentrates his sales efforts on AC products.



He knows that the foremost automotive engineers specify AC products as standard equipment for the very good reason that they perform best. That is the reason for their assured market. Backed by strong advertising, they are sold to motorists without sales resistance. They carry a good margin AC-Spark Plug Company, FLINT, Michigan BITMINGLAND Makers of AC Spark Plugs—AC Speedometers—AC Air Cleaners of profit.

AC SPARK PLUGS

THE new AC Spark Plug marks the greatest advance made in spark plug construction in years.

A new design, a new alloy for sparking points, a new electrically fused Kyanite insulator core and a new glaze - in a type and size for every motor

For Fords there is he famous AC 075, embodying the above improvements as well as many other special features - and it is now made in both one- and two-piece design.

AC SPEEDOMETERS

HE AC Speedometer for Fords is of the same high quality as furnished for original factory equipment to the manufacturers of Buick, Cadillac, Chandler, Chevrolet, Chrysler, Gray, Oakland, Oldsmobile, Peerless, Pontiac and GMC Trucks.

There is no swivel joint between the front wheel and the fustrument-it drives directexclus vely an AC feature, insuring continuously satisfactory service.

Packed complete with all installation attachments, easily mounted and reasonably priced.

AC AIR CLEANERS

THE AC Air Cleaner prevents dust from entering the motor through the air intake of the carburetor, thereby eliminating excessive wear on the motor's moving parts.

Original factory equipment on Buick, Davis, Locomobile "Jr. 8", Oakland, Nash, Stutz and Willys-Knight "6"—Models available for Brothers, Ford, Maxwell, Oldsmobile, Star Studebaker, as well as the 1925 and earlies models of Buick, Nash and Oakland.

Packed complete with all installation attachments, easily mounted and reasonably priced.

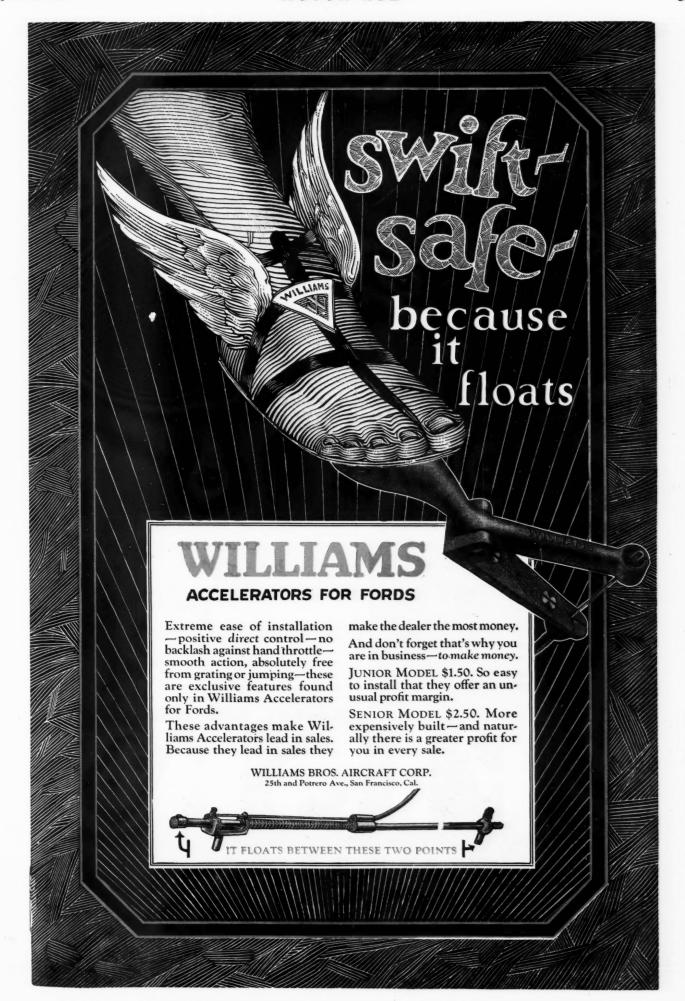
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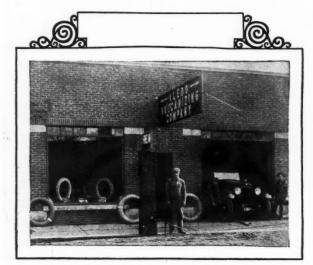
LEO - Perrat NCB

take cestutz e for odge ctar, rlies



Town of 2,500 Population Produces \$14,000 for Fisk Tire Merchant

An Impressive story of Business Success Founded on Fisk Concentration

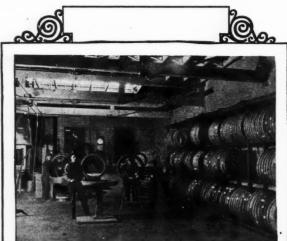


Although the Aledo Vulcanizing Company is located in a town of only 2500 population they sold approximately \$14,000 worth of Fisk Tires last year. Judging from the number of satisfied customers made, the Aledo Company predicts that they will do an even greater volume this year.

The Aledo Vulcanizing Company handles Fisks exclusively. They have found it pays. Satisfied customers mean repeat orders. In a small town especially you must give your customers the best product or they will not come back.

These tire merchants have earned a splendid reputation based on integrity and fair dealing and backed up by tires that fulfill every promise made for them.

Don't hesitate to write about the Fisk Dealer Franchise Plan. Profit by the experience of the Aledo Vulcanizing Company and hundreds of other exclusive Fisk merchants who are piling up profits. Send us your name and address today.



The Fisk Tire Company, Inc., Chicopee Falls, Mass.





'... and you get an extra wheel without extra cost"

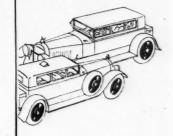
T'S a powerful selling argument ... that extra Budd-Michelin Wheel. There's nothing makes a man buy like the feeling that he's getting his money's worth . . . and then some!

Five Budd-Michelin Wheels to a set instead of four! An extra wheel that dresses up the rear... that adds dash and swagger to the sporty roadster... smartness and distinction to the family car.

A spare wheel, to carry the spare tire. Ready in event of accident . . . a four-minute job to change to the spare.

No wonder motorists are saying "goodbye, buggy wheels!"

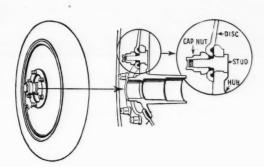




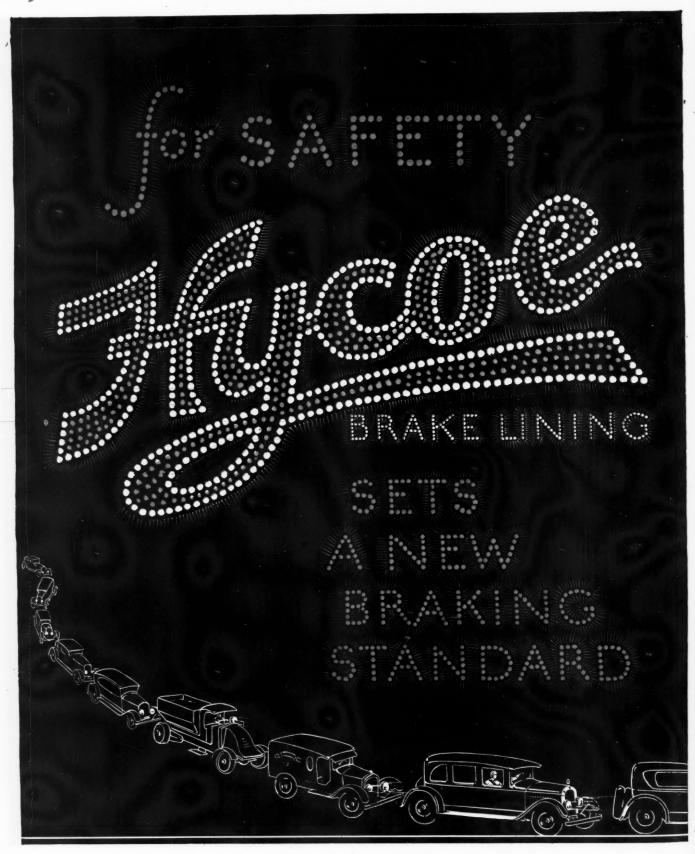


BUDD-MICHELIN WHEELS . . . are seen but not heard. They can never work loose or become noisy, because—

- (1) The holes in the disc are larger than the studs on the hub. The disc does not touch the studs but is held in place by the ball-faced cap nuts.
- (2) The disc cannot shear off the studs. The holes cannot be worn eggshape.



- (3) The cap nuts hold all parts—studs, nuts and disc—in tension. There can be no play—no rattles, squeaks or other noises from the wheel.
- (4) The cap nuts are in effect self-locking—will not loosen until you loosen them with a wrench.



THE MANHATTAN RUBBER MFG. COMPANY

Executive Offices and Factories: Passaic, N. J.

Branches:

Chicago Detroit

New York **Baltimore** Birmingham Boston

Cleveland Los Angeles Minneapolis New Orleans

Philadelphia Pittsburgh

Salt Lake City St. Louis

OUTIA



BOSCH

Bosch Shock Absorbers are pyramiding in sales because they save the car owner money. They stop squeaks, rattles and give quieter, smoother riding over all roads. Easily adjusted to balloon or high pressure tires. The widely advertised Bosch Shock Absorber is a particularly attractive dealer proposition -- no special types, no big stock, no heavy investment needed -- and Bosch dependability and reputation is your profit guarantee.

For Fords—(3-point Control Set) Complete \$16.50 per set. Medium Cars \$15.00 per pair. Heavy Cars \$20.00 per pair.



City

SHOCK ABSORBER

The New BOSCHS for Popular



BACK COVER ASSEMBLY, and SELF-LUBRICATING WOOD FRICTION BLOCK. A steel friction plate is fastened to the inside of back cover by the center bolt. The friction surfaces of the wood block are knurled and graphited. One side of this block rests against the steel friction plate on the back cover.

When in use the block rotates in both directions and the friction between the two surfaces dissipates the energy of the shock,



OPPOSITE SIDE OF WOOD FRICTION BLOCK. View shows flat and tapered face on this side of block, also inner side of friction disc and hub assembly.

The friction disc is shaped to fit the surface of the wood block against which it rests. The hub assembly has inner flat sides which fit over the flat sides of the center bolt, holding it stationary.



BELT and FRICTION BLOCK AS-SEMBLY. The belt is wrapped around the friction block and held in position by a belt shoe and metal guide. The belt shoe and webbing grip the outer edge or periphery of the block. When the belt is pulled out, the block is rotated in one direction. When the pull ceases, the coil spring rotates the belt and block assembly in the opposite direction. A new Bosch Shock Absorber has been designed the to meet the demands of the modern day carshoc The lighter springs, shorter wheel base and inother creased speed of the new cars require more that receiver, a road shock absorbing device and reboundary controller of instantaneous action and greater rangivers.

For years the Bosch Shock Absorber has been that garded as best in design and most efficient in pragrout tical shock absorbing results. The new Bosch Shock which Absorber retains the mechanical principles so successont ful in the past but the action has been quickened, theory, frictional surface has been increased and the range great operation has been enlarged. An entirely new smoothnuss acting and quiet operating result has been achieved.

These new features greatly enlarge the sales possible the ities of the Bosch Shock Absorber in every locality and the sales possible the sales pos

The new improvements include making front and ust rear units identical. There are but two types needs ran to properly fit all car models. This means informinimum stock and a minimum investment five the dealer. There are no painstaking adjust AM ments. Time of installation is reduced—Main saving to the dealer and to his customerance.

A New Shock Absorbe

Shock Absorber-

esigner here are many advantages in the new Bosch ay cashock Absorber which are not to be found in nd inother devices. Better performance, longer life, e the freedom from frequent adjustment—requiring no ebountare they build a greater customer satisfaction.

very few motor car accessories carry the good will which users have expressed for the Bosch Shock een habsorber for so many years past. To this backn praground is added the new Bosch Shock Absorber h Show which with all its new features will enable you to successorted the shock absorber business in your terriened, tory. The Bosch Shock Absorber dealership has range reater possibilities than ever before. It offers you smoot inusual opportunities for new sales and new profits. chieved

The Bosch Branches now have the new Bosch Shock possible Absorbers in stock. They will tell you more of he many advantages of the new type and they will gell you of the profit to be made in your territory.

ront allust indicate your interest to the nearest Bosch es need Branch. You will be furnished with full sales means information and a complete outline of the exclument we features of the new Bosch Shock Absorber.

MERICAN BOSCH MAGNETO CORP.

ced-Main Office and Works:

Springfield, Mass.

stome RANCHES:

New York Chicago

Detroit

San Francisco

be or the new-day car



WORKING ASSEMBLY COMPLETE. Shown without reinforcing plate and front cover. The inner end of the coil spring is held in a keyway in the center hub. The outer end of the spring is attached to the belt and friction block assembly.

When the belt is pulled out, it pulls against the coil spring, and the resistance of the wooden friction block.



SECTIONAL VIEW OF Shown without coil spring. This view shows method of obtaining frictional resistance. When the adjusting screw is tightened, it exerts pressure through the star spring against the reinforcing plate and hub, which forces the friction disc tighter against the wood block and increases the friction on both sides of the block.

Friction resistance can be adjusted by tightening or loosening the adjusting screw.

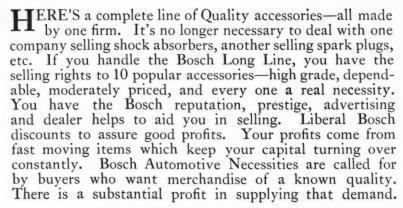


CROSS SECTION VIEW-COMPLETE UNIT. Shows the wood friction block pressing against steel friction plate. Note how the tightening of the adjusting screw forces the friction disc against the wood block and increases the frictional resistance. The pressure is exerted through the center hub and not against the coil spring, which has ample room to operate without interference.

Drit Maker

The BOSCH LONG LINE of Automotive Necessities







Absorber

Ask About the Bosch Dealer Franchise

You can profit still more by becoming an Official Bosch Dealer. The requirements are simple—the benefits many. Some of the advantages you would get are: Special discounts on all Bosch material. Greater profits through increased sales. Personal assistance from Bosch salesmen. New markets—added prestige locally. Reference books, sales literature, etc. Sales promotion and advertising service.

For full particulars, fill out coupon and mail TODAY

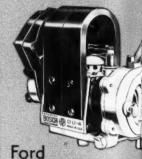
AMERICAN BOSCH MAGNETO CORPORATION Main Office and Works: Springfield, Massachusetts

17-23 W. 60th St., New York 3737 Michigan Ave., Chicago Branches

89-95 Hancock Ave. W., Detroit 1262 Post Street, San Francisco



Ford Ignitio



Ignition Magnet Fitting



Spark Plug



Ignition Coil



Electric Horn Straight Model and Curved Model





Fordso Govern

Bosch Radio

Ford Ignition Systems

☐ Bosch Dealer Proposition

Fordson Ignition System
Fordson Throttle Governor

AMERICAN BOSCH MAGNETO CORPORATION Send me full particulars about:

Complete line

- Shock Absorber
- Windshield Wiper
- Spark Plug
- Electric Horn

Firm Name

Street Address City State

..... Signature.....

Ship me the following units at quantity discount C.O.D.—



The JUNIOR AMBOTONE BOSC the country. The Receiver and the Reproducer ha

tained the Bosch tion for quality now for full info

ord

Fordso

Gover



Motor Car Character

A statement by R. H. MULCH

Vice-President and General Manager of Flint Motor Company

- Of There is as much difference in the character of automobiles as in that of men!

 The Flint is a concrete and definite example of its builders' ideals, a perfect picture of the vision, the
- Q A man's character is built slowly, molded by his experiences and his environment, and actually known only to those who know him best.
- O So it is with motor cars. Their character also is born of experience—the experience of the builders—tested by time and usage, and proved by service. The character of a motor car is dependent upon the resources behind it, the vision of its sponsors, and the execution of their knowledge. It is an example of their ideals, expressed in tangible form.
- O And, like man, the character of a motor car is known best to those who come in closest contact.

- Of The Flint is a concrete and definite example of its builders' ideals, a perfect picture of the vision, the knowledge, and the resources behind it. It is a true reflection of a great organization.
- O A product of one of the finest manufacturing plants in the world, directed by men whose experience dates from the beginning of the industry, it is not to be marveled at that the Flint is recognized as a car of character.
- Of Flint owners and drivers know Flint character and hundreds more are learning it every week, because good news of importance, like a good motor car, travels fast, and sure.

THULLEL

Vice President and General Manager

FLINT MOTOR COMPANY

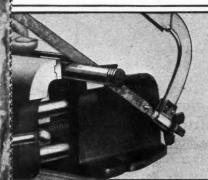
FLINT, MICHIGAN

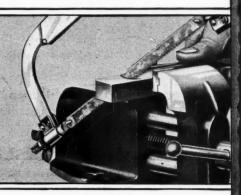
BUILDERS OF HIGH GRADE MOTOR CARS

· F L I N T ·

Are you using the right kind of HACK SAW BLADES?

THERE are Goodell-Pratt blades made for general allaround work, blades for jobs where there is severe twisting and side strains, blades for iron and steel, blades for brass or pipe, blades for soft metals, blades for thin steel sheets or tubing. Are you using the right kind of blades? Read this advertisement and find out.





No. 888 ALL-HARD Hack Saw Blades

Made from a high grade of hot rolled sheet steel .025 inch thick. Cut so that the length of blade runs with the grain. Teeth are cut, sharpened and set by a special process for speed in cutting. Hardened and tempered by another process which assures uniformity and long life.

These all-hard blades are for general work and are offered in lengths from 8 to 12 inches.

No. 777 FLEXIBLE Hack Saw Blades

These blades are for cutting under difficult conditions. Made to withstand severe twists and strains without snapping.

Made from the best hot rolled sheet steel with hardened teeth and back, but with soft centers

hardened teeth and back, but with soft centers for flexibility. The result is a fast-cutting, long-life blade that will stand up under severe strains. Offered in lengths from 8 to 12 inches.

Pick the right Goodell-Pratt blade for the metal to be cut

For cutting iron and steel rods or bars, use blades with 14 teeth to the inch. For cutting brass, tubing or pipe, use blades with 20 teeth to the inch. For soft metals or light tubing, use blades with 24 teeth to the inch. For thin steel sheets or tubing, use blades with 32 teeth to the inch.

Interesting catalog FREE

The Goodell-Pratt Catalog shows all the Goodell-Pratt hack saw blades, as well as frames and all the other 1500 Good Tools—many made especially for motor repair work. Write for a copy. It's free to you.

GOODELL-PRATT CO. Joolsmiths GREENFIELD, MASS.

Makers of Mr. Punch

GOODELL-PRATT



CORD

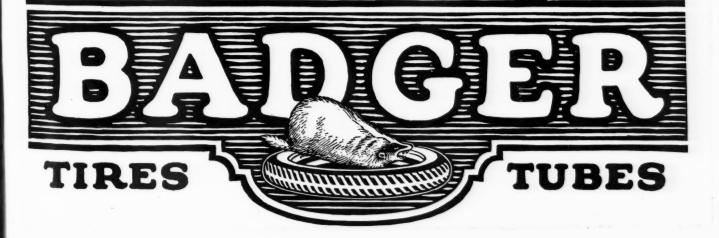
If you have experimented with a line of tires that has not proven satisfactory—take another chance and try

Badger

Dealers almost everywhere are most enthusiastic over its fine quality, unusual serviceability and business building possibilities. It's profitable, too.

Dealer trade supplied through leading Jobbers.

The Badger Rubber Works
Milwaukee, Wisconsin



NOW IN PREPARATION!

Sales and Service Reference Number

MOTOR AGE

Will be published May 6, 1926

This big special issue of MOTOR AGE will contain an immense volume of merchandising and maintenance information of value to car dealers, accessory dealers, repair shop proprietors, garage men, and all other automotive merchants.

The first Sales and Service Reference Number of MOTOR AGE was published April 30, 1925. It met with immediate appreciation from automotive merchants throughout the United States. That issue contained a complete Flat Rate Manual giving prices on nearly 300 operations on 40 makes of cars.

The May 6, 1926 issue will contain among other features, a revised Flat Rate Manual listing upwards of 10,000 service and maintenance operations.

Many new and valuable features are planned for the coming issue of the Sales and Service Reference Number.

MAKE A NOTE OF THE DATE — MAY 6th BE SURE YOU GET YOUR COPY OF THIS COMPREHENSIVE REFERENCE GUIDE.

MOTOR AGE

5 SO. WABASH AVE., CHICAGO, ILL.



IT CAN BE DONE!

There is no need of one's head becoming clubby with the top of the car. No need of leaving the seat. Burd-Gilman Shock Absorbers take care of that situation absolutely. Just as well ride in comfort—just as well save the car all the grief.

Your customers will see the point—they'll recognize the saving of repairs; the advantages of riding comfortably if you tell them. You'll recognize the superiority of Burd-Gilman Shock Absorbers if you'll test them. You'll understand why our sales are increasing so rapidly, why more and more dealers are recommending and selling them.

Write for Literature, Prices, and Trade Discounts

BURD HIGH COMPRESSION RING COMPANY

Makers of the Famous Burd Piston Rings ROCKFORD, ILLINOIS

SHOCK ABSORBERS

THE ORIGINAL SNUBBING DEVICE WITH THE STEEL CABLE





WHY BURD-GILMANS ARE BETTER:

- 1. Steel Cable will not break, stretch,
- kink, rust, or stick.

 2. Steel Housing is weather-sealed. No water, ice, mud, dust nor grease can get into the working parts.
- 3. Simple screw driver adjustment adapts Burd-Gilmans to any tension desired for either balloon or high
- pressure tires.
 4. Tension remains set. Will not work loose, requiring frequent adjustments.
- 5. Recoils from all depressions, large or small, continuous or at intervals, are instantly checked. No set spots where shock absorber will function and others where it will not. Spring control is constant.
- No greasing nor oiling-ever.
- Simple, trouble-proof construction. Very few moving parts
- 8. Maximum riding comfort.
- 9. Easy to install.
- No servicing required.
- 11. The best insurance against car de-preciation and repair bills because ribration is reduced to a minimum.
- 12. Guaranteed.

Do You Want to Reach, Effectively—

Car and Accessory Dealers?
Service Station Owners?
and Automotive Merchants Generally?

Our annual SALES and SERVICE REFERENCE Number, out May 6, 1926, will be given spontaneous and nation-wide acceptance by more than 25,000 sales and maintenance executives.

Among its many commanding editorial features will be a revised Flat Rate Manual listing upwards of 10,000 service and maintenance operations.

An issue that will live for a year. A gold-mine of reference material of inestimable value in more than 25,000 dealer and service establishments.

It is hard to imagine how anyone in the trade can "keep house" without a copy of this issue always available. Assuredly it will be a rare opportunity to present your merchandise message to 25,000 of the country's best.

The cost per page is by no means high. In fact the one-time advertising rate per page will mean less than eighty cents per hundred subscribers. You can't buy postage stamps for that if you are mailing circulars. AND keep in mind that MOTOR AGE is read and studied—not merely looked at and waste-basketed.

There will be no advertising rate increase for the annual SALES and SERVICE REFERENCE Number. Early receipt of copy will be to your advantage as well as ours.



5 South Wabash Ave.

Chicago



The Right
Tappet

Wrench

Is the

"SUPERRENCH"





J. H. WILLIAMS & CO.

"The Wrench People"

New York

Chicago

BUFFALO

APPET adjustment must be done in cramped quarters, while the engine is hot. For such work a man needs a tool that's a help, not a hindrance.

He wants the *right* wrench—and it's The "Superrench."

The Tappet-Type "Superrench" is light, yet has ample length—8 to 9 inches—to prevent burned fingers. The 15° angle of the opening is the most efficient for tight places. And the thin pointed jaws get a grip where no clumsy wrench could go.

Like all "Superrenches," it's made of Chrome-Molybdenum steel—the toughest metal in modern use. We guarantee it not to break under any use or abuse.

> Tappet "Superrenches" are also sold in sets, with or without attractive and durable roll case.



NEW PRICES

New Balloon Type Models

Westinghouse Air Springs NOW \$75.00 \$100.00 \$125.00

Westinghouse Air Springs are now sold direct from factory to you at wholesale and you INSTALL them. Always good sellers, Westinghouse Air Springs are now selling FASTER and EASIER than ever before.

These New Highway Model Westinghouse Air Springs are designed particularly for balloons and present-day automobile construction. No altera-

tions to frame or springs are now necessary. Attached by brackets that are interchangeable with regular car members. Transferred readily from old cars to new.



New models, new LOW prices—and now new HIGH discounts. Send for details — they'll show you clearly why you should get behind Westinghouse Air Springs.



New Haven, Conn.



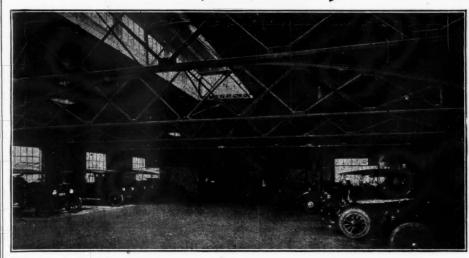


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High class workmanship but no waste of labor

Prompt delivery because there is no "red tape".

We ship everywhere.

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"Better trusses for less money"

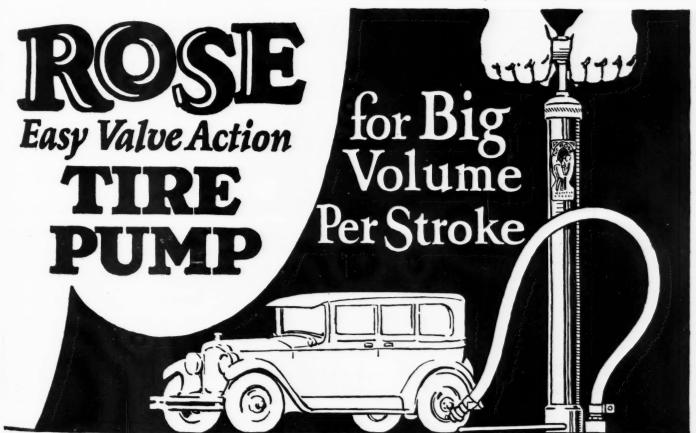
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Quote Mesker Standard Bowstring Steel Roof Trusses for building.....ft. wideft, long.

No obligation on my part.

Name

Address



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Handle one line and only one. You can if it's Raco. Get our attractive illustrated literature on the many standard sizes and style.

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A QUALITY SHAFT in every respect. Patented design. Drop forged in one piece. Beautifully machined and finished in world's largest crank shaft plant. Two types for both Ford and Dodge: "Regular" for splash oiling; "Drilled" for force feed oiling; "Brilled" for force feed oiling system. Approximate weights: Ford 22½ lbs., Dodge 50 lbs. Every owner wants one. A necessity for Ford racers. Write for literature and prices.

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That's why garage owners all over the country report unusual profits from operating a Crowe Cup Wheel Valve Refacer. In 30 seconds it does the work that ordinarily requires an hour. And it increases the efficiency of every valve regrinding job 100%! Also, its installation cost is just about half what you'd expect to pay for this simply constructed, long lasting machine. It has fewer parts subject to wear than any other machine on the market.

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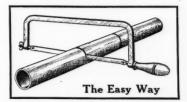
Lisle Manufacturing Company

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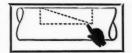
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Just two straight cuts

Your
Hack Saw
KNOWS
Petry Is Easiest
to Install



Propaganda to the effect that split type cut-outs are as easy to install as Petrys has its foundation on thin air. Every mechanic knows its easier to make two straight cross cuts in a pipe than to saw, then drill, then turn blade and hack, file or chip a square section out of an exhaust pipe. And it's frequently not necessary to remove exhaust pipe when installing a Petry.



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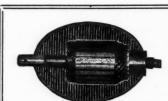


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New Rewind Profits—See announcement every 4th week. Write now for price list. The H. M. Fredericks Co., Lock Haven, Pa.



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Chicago, Ill.



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Makes old cars look like new

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May 6, 1926

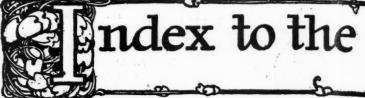
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M.A. 4-22-26



The Advertisers' Index is published as a convenience and not as a part of the advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.

A. C. Spark Plug Co60	Fostoria Screw Co 5	5
Akron-Selle Company, The 81	Fredericks, H. M., Co 8	0
Albertson & Co 56		
Alvord Polk Tool Co 79		
Amer. Bosch Magneto Corp65-68		
American Chain Co58 & 59	Gates Rubber Co 5	1
	Gaylord Mfg. Co 8	0
	Gemco Mfg. Co 8	0
	Goodell-Pratt Co 7	0
Badger Rubber Works 71		
Bearings Co. of America 78		
Bosch, Robt., Magneto Co 80	Hall Mfg. Co., The	
Brown-Lipe Gear Co 54		
Brunner Mfg. Co 80	Hammett Mfg. Co	1
Budd Wheel Co 63		
Buick Motor Co 1		
Burd High Compression Ring Co. 73		
	India Tire & Rubber Co8	1
Cadillac Motor Car Co	James Motor Valve Co	7
Conneaut Packing Co 80	Kawneer Co., The	1
Curtis Pneumatic Mach. Co 80	Key Boiler Equipment Co	
	King-Seeley Corp	
	Kissel Motor Car Co52 & 5	
	Misses stown out Commission	
Dill Mfg. Co3d Cov.		
Durkee-Atwood Co 80		79
	Lisle Mfg. Co	
	Loomis-Knight-Miller, Inc	,,
Fisk Tire Co., The 62		
Flint Motor Co 69		

Follett Time Recording Co....... 78 Mallory Electric Corp., The 80

Quine

Mar Mar

Mill Mod

Nasl New

New

Nort

Olds

Pack Petry

The I

Prote

Rainb

Relial

.. 80

.. 51

... 80 ... 80

2 & 53

Advertisements

Manhattan Rubber Mfg. Co., The 64	Reynolds Aluminum Co 78
Manley Mfg. Co2nd Cov.	Rose, Frank, Mfg. Co 77
Geo. L. Mesker & Co 77	
Miller, A. J., Co 4	
Modernola Co., Inc 81	
	Sherwin-Williams Co 81
	So-Lo Jack Co., Inc 79
	Staff, J., Wadsworth 78
Nash Motors Co 6	States Chemical Co 81
New Departure Mfg. Co 2	Studebaker Corp., The 5
New Era Spring & Spec. Co 78	Stutz Motor Car CoFront Cov.
Northwestern Chemical Co 3	
	Timber Baller Berring Co. The co.
	Timken Roller Bearing Co., The 80
Olds Motor Works 49	
-	
	U. S. Elec. Tool Co 81
	Universal Test Equipment Co 83
Packard Electric Co., TheBack Cov.	The Later Comment
Petry Co., N. A 79	
The Prest-O-Lite Co., Inc 80	
Protex Chain Co., Inc 80	
	Western Chain Co 81
	Westinghouse Air Spring Co 76
	Wheeler-Schebler Carb. Co 50
	J. H. Williams & Co 75
Quincy Compressor Co 81	Williams Bros. Aircraft Corp 61
	Woods Engineering Co 78
*	
Rainbo Accessories Co 81	
Reliable Spring Oiler Co., The 80	Zenith-Detroit Corp 81



The UNIVERSAL TYPE HEAVY-DUTY Test Handle

The ONLY REAL IMPROVE-MENT in YEARS!

-Newest and by far the best Test Point for electrical testing.

It takes the place of make-shifts, and in a business-like, scientific way, does every job required of test handles. Outlasts all other types of handles.

A TIME AND LABOR SAVER: If change of leads is desired, simply remove cap, pull out old leads, insert new and replace cap. Simple, Quick, Easy. NO SOLDER, NO TOOLS, NO TAPE. Nothing to get out of order.

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Sold with ACID-PROOF, HIGH-TENSION-INSULATED leads equipped with terminals for fastening on meters, or instrument boards at only

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Universal Test Equipment Co.,

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Address.....

MAIL THIS COUPON IN TO US NOW.

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Thousands of Hall Hone users believe they have the best Hone made and so do we.

But our interest in our tool does not cease when you buy it. We want to see it increase your business and we want to help you get more business.

That's why we make this offer to every Hall Hone user, without profit

Here's our Offer!

Pin a dollar bill to your letterhead and mail it to us. We'll send you-

One cut of Hall Hone for use in an advertisement in your local paper over vour name.

One Hundred 2-color circulars (like that below) for mailing to car owners in your locality. All you do is stamp or print your name on page 4 and mail

Pin a dollar bill to your letterhead and get this advertising

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The HALL Mfg. Company

504 Hall Bldg.

1600-06 Woodland Ave.

Toledo, Ohio



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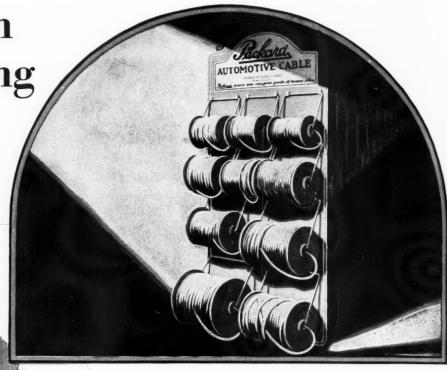
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StandardTireValves and ValveParts

Big Step in Merchandising Cable



Cable is a profitable item when properly handled

The Packard Merchandiser which accommodates twelve spools of Packard Cable (an assortment that will take care of any car on the road) is generally admitted to be the biggest step ever taken in making of automotive cable a profitable merchandising item.

Together with a Packard Wiring Chart and other

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of Packard
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